

Google Cloud Next '21 Day 1

Company Participants

- Aleksandra Aleksic, Product Manager, Looker, Google Cloud
- Alison Wagonfeld, VP, Marketing Google Cloud
- Brad Miro, Developer Advocate, Google Cloud
- Dane Hanson, Director of Product Marketing, Data Cloud, Google Cloud
- Derek Downey, Developer Relations Engineer, Google Cloud
- Erika Trautman, Director, Product Management, Google Workspace
- Gerrit Kazmaier, VP and GM Database, Data, Analytics and BI Solutions, Google Cloud
- Ines Envid, Director, Product Management, Google Cloud IaaS
- Javier Soltero, VP and GM, Google Workspace
- Jonathan Cham, Head of Customer Engineering, Google Cloud
- Kady Dundas, Director of Product Marketing, Google Workspace
- Leigha Jarett, Developer Advocate, Google Cloud
- Matthew Izatt, Product Manager, Google Workspace
- Melonie Parker, Chief Diversity Officer, Google
- Nikita Namjoshi, Developer Advocate, Google Cloud
- Stephanie Wong, Developer Advocate, Google Cloud
- Sundar Pichai, CEO, Google and Alphabet
- Thomas Kurian, CEO, Google Cloud

Other Participants

- Joff Redfern, Chief Product Officer, Atlassian
- Ray Bajaj, CTO, Cardinal Health
- Suresh Kumar, Global CTO and CDO, Walmart Inc.

Presentation

Jonathan Cham {BIO 20723026 <GO>}

Hey there! We are about six minutes from the kickoff of Google Cloud Next, and I'm glad you're here. I'm Jonathan Cham, coming to you live from our Sunnyvale campus with a few of my Cloud Next colleagues. Over the next three days, you'll have complete access to our keynotes, demos, Q&As and sessions where you can engage with our Google experts live!

And when you can't be with us in real time, customize your on-demand playlist to watch your favorite content anytime, anywhere.

In the next few minutes, we're going to share some of our Google Cloud Partner and Customer Award Winners, and you'll meet a few of our sponsors who created video introductions just for you.

First up, check out how Accenture combines its industry expertise with Google Cloud's technology to deliver transformation. At scale.

(Presentation)

It's awards season around here and we want you to recognize our partners who are on the front lines of digital innovation and driving exceptional results for customers. Today, I'm excited to share the Google Cloud Partner Awards.

Here are our global winners in nine industry categories. Our reseller partner of the year is DoiT International. Services Partner of the Year, Deloitte. In the Industry Solutions Category, Capgemini. The Breakthrough Award, TCS. And Expansion, Wix. Our Technology Partner of the Year, Palo Alto Networks. Our Public Sector, Deloitte. Diversity, Equity and Inclusion Partner of the Year is GoPomelo. And finally, our Social Impact Partner of the Year award goes to Atos.

To see all of our winners recognized across regions, check out our website. Congratulations to our global winners and a big thank you to all of our Google Cloud partners that are enabling and accelerating Cloud transformation for our customers every day.

Next up, meet Atos Maven Wave, a leading Google Cloud digital transformation partner with more than 11 partner specializations and four-time Google Services Partner of the Year award winner. Most recently, the company was named Global Social Impact Partner of the Year. Here's more.

(Presentation)

And now, I'm thrilled to announce the Inaugural Google Cloud Customer Awards. These awards recognize customers that innovate and create industry-leading solutions and exceptional customer experiences with Google Cloud. There are some truly outstanding success stories impacting our world in countless ways, which is why it's my honor to present to you our Customer Award winners of 2021 in the following categories.

Social Impact, Diversity, Equity & Inclusion. Cross-industry, we have multiple winners in this category. Retail. Again, lots of winners in this category as well. Manufacturing. Communications and Service Providers.

Moving on to Financial Services. Again, many winners in financial services. Gaming. Healthcare and Life Sciences. Media and Entertainment. Government. And our final customer award in the category of Education. Congratulations to all our winners. Google Cloud is proud to be a part of your story.

And finally, we want to thank all our sponsors for being great partners and continuing to support us, including Deloitte, our four-time Global Services Partner of the Year winner. Here's how Deloitte can help with your digital transformation journey.

(Presentation)

Thanks for watching our Cloud Next '21 pre-show. We'd like to thank our sponsors, Accenture, Atos Maven Wave, and Deloitte. Thanks to our partners and our customers, and congratulations to all our award winners. We hope you enjoy these three days of Next. Be sure to build your custom playlist, share it on social, and join the conversation on Twitter and LinkedIn with #GoogleCloudNext.

Now, stay right here. The live keynote is about to begin.

Alison Wagonfeld

Hi, everyone. I'm Alison Wagonfeld with Google Cloud. Welcome to Google Cloud Next, and thank you to our Google orchestra composed of Bay Area Googlers. We are coming to you live from our Google Cloud Campus in Silicon Valley, where I'm here with Sundar Pichai and Thomas Kurian.

We have an incredible lineup over the next three days with live keynotes, demos, and Q&A with our leadership, and over 140 sessions covering all our Cloud solutions. Our customers and partners will share how they're using Google Cloud and Google Workspace technology to tackle their greatest challenges and opportunities. We're humbled to support their work and share their stories. Thank you for being here with us.

And now, please join me in welcoming Google and Alphabet CEO, Sundar Pichai.

Sundar Pichai {BIO 15004624 <GO>}

Hi, everyone. Welcome to Google Cloud Next 2021. We are happy you're here. Of course, I'd be happier if you could actually be here, in person. Don't get me wrong, Thomas is Great company, but he still doesn't laugh at my container jokes.

So while many of us are still waiting for a return to normal, it does feel like we are on our way. The question is, will we recognize normal when we get there? The pandemic has sped up digitization in all aspects of our lives. It's changed how we visit the doctor, how our kids learn in school, and how we connect with one another.

And it's made the future of work our present, giving us renewed opportunity to transform our organizations. From our work with customers, Thomas and I have learned there are three things that position us to be most helpful to businesses. First, our Cloud platform. It's designed to help enterprises transform through digitization, built on the deep investments we've made in technical infrastructure over the past 23 years.

Looking at our networking and data center investments alone, we have the largest network with the lowest-latency of any Cloud provider. With our expansions into Warsaw, Delhi, Melbourne and Toronto this year, we now have 28 regions, with plans for ten more. And it's all connected by 19 subsea cables.

Our Grace Hopper transatlantic cable will be the first to incorporate novel optical fiber switching. Second, our enterprise customers benefit from our consumer scale and innovation. We have a deep and broad consumer ecosystem of devices and services. YouTube connects a global community of viewers and creators. Android, Nest, Assistant, and Maps are loved by people around the world.

We have the unique ability to connect consumer ecosystems with enterprise ecosystems. For example, the realistic voices and language understanding that powers Google Assistant can improve enterprise customer experiences and increase satisfaction. And the underlying visual technology that enables Google Lens to help people shop or learn about a new flower in their garden can help manufacturers identify defects.

Third, we offer comprehensive security that helps organizations, including ours, protect what matters. Security is foundational to everything we do. We have a long history of building it into every layer of the computing environment. We're a pioneer of zero-trust computing, and have deep experience running this model at scale.

On its own, any one of these pillars would be helpful to customers. Put together, they can be transformative which is the mission of Google Cloud. We continue to drive innovation through our products. Over the past year, we've had more than 1,500 product and feature releases. That's about four a day.

They're all designed to be helpful, from Smart Canvas in Google Workspace that makes collaboration richer, to new AI-powered industry solutions, and Big Query Omni for data analytics across any Cloud. We've also made significant partnership announcements. For example, we teamed up with global telecom leaders such as Ericsson, Nokia and T-Systems to deliver 5G edge and hosted computing solutions. What I'm most excited about is how our strengths in Cloud, Consumer and Security are helping top enterprises accelerate their transformation.

Ford chose Google as their transformation partner because of our strength in consumer and cloud. Together, we are innovating in electrification, connectivity, and self-driving technologies. Ford is harnessing Google Maps to help drivers navigate,

Google Assistant to help drivers concentrate, and Google Play to keep passengers learning and entertained.

L'Oreal partnered across Google to build a virtual try-on experience. They are harnessing the best AI models as well as using YouTube to build a community of fans, and Google Shopping to make it easy to discover and buy their products.

We are humbled that so many organizations continue to put their trust in Google Cloud. And we are committed to helping you solve the biggest challenges you face. I'll be back a little later to talk more about how we do that.

But first, I'll turn the stage over to Thomas Kurian, CEO of Google Cloud, to talk more about our mission.

Thomas Kurian {BIO 3811076 <GO>}

Thank you, Sundar. Hello, everyone. It's a pleasure to be here on Google's Silicon Valley campus today for the moment we all look forward to all year long, the opportunity to connect with you, our customers, partners and developers, and to share all the amazing, exciting stuff we've been working on.

A special thank you to all our sponsors, especially our Luminary Sponsors, Accenture, Atos/Maven Wave, and Deloitte. Let's first hear from some of our customers about the amazing ways in which they have accelerated transformation with Google Cloud.

(Presentation)

Now, it's not a secret that many of the biggest and most innovative tech companies, leaders such as Spotify, Twitter, Shopify, Mercado Libre, ShareChat, Dapper Labs, and so many other exciting startups and tech leaders choose Google Cloud to help them build, scale, and innovate. Still, other customers are transforming using our purpose-built industry solutions.

The Home Depot, for instance, used contact center AI to reduce customer resolution time by 91 million minutes. Procter & Gamble creates personalized omnichannel journeys from over 275 million consumer records. IKEA Retail use Recommendations AI to increase eCommerce click-thru rates by 30% and increase order value by 2%.

FIH, a Foxconn company, used Visual Inspection to identify defects 10 times more accurately. Mr. Cooper, a leading mortgage services provider, used Document AI to process mortgage documents 400% more efficiently. And Bank of New York Mellon developed a liquidity solution that predicts nearly 40% of securities settlement failures with 90% accuracy.

We are helping many businesses drive durable innovation through long-term partnerships with Google's Transformation Cloud. To help them transform, we focus on five key themes.

One, are we the best at understanding and using data in our industry? Two, do we have the Industry's leading technology infrastructure? Three, are we creating the best hybrid workplace for our passionate and talented employees? Four, do we know that our data, systems and users are secure now, and that they will be secure in the future? And five, are we working together to address the most important challenges facing our world today?

We help organizations address these important questions. Let's start with the first question. Are we the best at understanding and using data in our industry? We help organizations unify their data across multiple clouds and silos, combining unstructured and structured data and making data every employee's super power.

Using Data Analytics and AI together, Schrodinger accelerated clinical drug discovery by 60%, finding new breakthroughs faster. Like many states around the United States, the Wisconsin Department of Workforce Development confronted a wave of new unemployment claims. Using Google's data cloud, they clear over 750,000 unemployment claims, reducing claim time from weeks to just days, and disbursing over \$2 billion in unemployment benefits.

Walmart is transforming the experience for the approximately 220 million shoppers around the globe who visit a Walmart store, club, or eCommerce Web site each week.

I'm honored today to welcome Suresh Kumar, Executive Vice President, Walmart's Global Chief Technology Officer, and Chief Development Officer.

Suresh Kumar {BIO 21073281 <GO>}

Hi, Thomas, and hello, everyone! I'm excited to be here today to share about how we at Walmart are innovating on behalf of our customers, our associates, and the role that our partners like you, Google, have played in our innovation journey.

Now, I came to Walmart at a time of incredible digital transformation, and jointly with my team, created a robust execution plan to accelerate the transformation across three areas, building great customer experiences, optimizing our business, and modernizing our platform and our infrastructure.

Each of these three priorities are individually important, but when you bring them together, in the scale of a business like Walmart, it has a massive impact. If you move at speed, you can completely transform global operations and disrupt entire industries. Some of our most data intensive are critical decisioning process are getting the BigQuery treatment.

Through this, not only are we seeing significant savings that will continue as we migrate more and more data over, we are also seeing the ability to use the data in interesting ways, including enabling analytics at scale, and turning data into actionable insights. From a data migration to BigQuery standpoint, 97% of the tables

used for data warehouse have already migrated to the cloud, and 30% of a big data have been migrated with plans to almost double that by the end of this fiscal year.

And the cherry on the top is that BigQuery has allowed us to integrate with pretty much any data visualization tool and analytics tool that's out there. Thereby, improving our processing time by 23%, and, of course, needless to say, a much better user experience.

Using BigQuery has had a direct impact on our business. And a current example is our ability to close our financial books in three days instead of five days, and that's a pretty big deal. Leveraging our Cloud has enabled us to unleash the potential of AI across our entire business. This goes from predicting demand to managing in-stock levels to optimizing supply chain, to freeing up time for our associates to serve our customers.

As one example, Express Delivery which is our two-hour [ph] delivery service, which we launched last year, actively uses AI behind the scenes as the customer is creating their order. Multiple (inaudible) work in unison to optimize the delivery route and determine if the customer is eligible for express delivery.

We are building our own AI and ML capabilities to power multiple areas of our business including classifications, natural language processing, forecasting, regression, computer vision, predictions, process automations and a whole lot more. So, to wrap up, I'm really excited about the opportunity Walmart has to drive innovation and to further disrupt the retail industry. I hope you will agree that our work together is making a huge difference for our customers and our associates.

Thank you for having me.

Thomas Kurian {BIO 3811076 <GO>}

Thank you, Suresh. Tens of thousands of incredible organizations, like Walmart, choose Google's Data Cloud for four reasons. First, Google's Data Cloud is the most complete and unified data and AI platform to help you manage every stage of the data life cycle, from running operational transactions to developing analytical applications. We help customers unify data lakes and warehouses as data lake houses to reduce complexity and to combine structured and unstructured data.

Built-in Data Science and AI with support for MapReduce, Spark, and Presto enable continuous learning and experimentation. And, we support real-time streaming that natively uses open source standards like Beam and Flink. Google's Data Cloud is unmatched for speed, scale, security and reliability.

BigQuery, one of the most successful and beloved data warehouse solutions, with its unique serverless approach, during a typical week, helps more than 3,000 different organizations analyze more than 200 petabytes of data. And thousands of customers use Dataproc to run Spark and Hadoop clusters easily.

Spanner, a fully managed relational database with unlimited scale and multi-zone and multi-region consistency serves more than one billion requests per second and provides a five nine SLA. Google Data Cloud's Vertex AI offers the AI pioneered at Google Research and DeepMind, so that every data scientist and ML engineer can now build, deploy and scale AI Models faster and with 80% less code, using AI the same way Google does.

For instance, GE Appliances, an appliance manufacturing leader for more than a century, is using Google Cloud, including AI at the edge, to build innovative digital products with over-the-air updates. Finally, Google's Data Cloud is more open standards-based. You can choose from Postgres, MySQL, Redis, MongoDB, or migrate from Oracle or SQL Server. And we have strategic Partners with leading data-driven applications.

For instance, C3 AI has made its entire lineup of AI software Based applications available on Google Cloud. Our customers can analyze, govern, and visualize data from many databases and storage systems on Google or other Clouds, including all of Google's databases, Google Sheets, BigQuery, using LOOKER, our premier BI and embedded analytics solution.

Today, we are thrilled and excited to announce that we will be integrating Tableau, a leader in data visualization, with Looker, Google Sheets, and BigQuery. Tableau customers will soon be able to use Looker's semantic model, enabling new levels of data governance and access to data.

Let's take a look. Aleks, over to you.

Aleksandra Aleksic

Thank you, Thomas. In this demo, we're going to show you how you can seamlessly use Looker and Tableau together to answer your critical business questions.

Let's say, I work at an eCommerce company and our Looker model provides a consistent view across the organization for our most important business metrics. Here, for example, you can see the definition for gross margin. Our Looker dashboard is based on that same semantic model. Since it provides trusted insights at a glance, I can immediately see that sales are up. However, did I miss anything? Let's find out.

Say I'm more comfortable working in spreadsheets. I can now take advantage of the new integration between Looker and Google Sheets. With a couple of clicks, I have access to my governed and trusted Looker data in Sheets, and I can easily connect to my data models.

To understand which factors are impacting sales, I'll drag and drop fields from my model into a pivot table to break out sales by category over time. Since it's pulling from Looker, I can trust that all the data definitions are consistent. I can use familiar

Sheets formulas and formatting to get insights faster and understand how specific products are selling.

We see a notable downward trend month over month for activewear. I want to share these findings with my marketing team, who's using Tableau. Now I can use the new Tableau and Looker integration to combine data from my Looker data model with marketing data to build a more comprehensive view of my business.

Next, I'm going to plot sales by category, and then add marketing spend to the view. Tableau makes it easy for me to drill down on relevant data. Now I can see that social marketing spend was significantly lower for activewear, and this is why there's a downward trend in activewear sales.

I'm going to publish this result on Tableau online and tag my marketing team so they can take action. Leveraging integrations between Tableau, Sheets, and Looker, allows our teams to build powerful visualizations using trusted data. We can then share these visualizations throughout our organization to drive informed decisions, action, and impact.

Back over to you, Thomas.

Thomas Kurian {BIO 3811076 <GO>}

Thank you, Aleks. The second question customers ask is, do we have industry-leading technology infrastructure? We're experiencing great momentum with our Open Infrastructure Cloud. Many of the most demanding and technically advanced customers in the world disproportionately choose us.

Take, for example, leading media companies and streaming services, such as Univision and Globo, the largest media group in Latin America, they use our very high-performance networking, computing and storage to broadcast media, including live events such as the recent Tokyo Olympics.

Leading telecommunications companies are also choosing Google Cloud. Reliance Jio, the world's second largest mobile carrier, is automating its 5G network. Vodafone is processing over a billion network events each day. AT&T is delivering new multi-access edge computing solutions, and Telus is migrating critical IT and network workloads, all to Google Cloud.

Leading data management companies, including Databricks, Redis, Cockroach Labs, Couchbase, Elastic, Influx Data, MariaDB, MongoDB, Neo4j, and Singlestore are all growing faster on Google Cloud than on any other Cloud and they love our storage scalability and advanced infrastructure.

MongoDB, for instance, has more net new customers via Google Cloud Marketplace than any other Cloud. Leading cybersecurity companies, such as Palo Alto Networks,

Exabeam, F5 Shape, Splunk, Broadcom, and ForgeRock are also choosing Google Cloud for its performance, global scale, and underlying security.

Customers are migrating and transforming SAP and VMware workloads to Google Cloud. In the last year, we've added three times the number of SAP customers as the prior year, and we're accelerating. PayPal, for instance, has an SAP/HANA scale out supporting 40 million business transactions daily and 200 billion records touched in just 30 seconds. Mitel, in Canada, migrated over 1,000 VM wear virtual machines in less than 90 days to Google Cloud VMware Engine.

Nylas, an API platform company, chose our Tau virtual machines along with Google Kubernetes Engine, as they saw over 40% better price performance than on a competitor. Customers choose our open cloud infrastructure for three main reasons.

First, we make your path to migrate and modernize using the Cloud easy with migration tools, new serverless and container capabilities, and Managed services as your developers spend more time building experiences that your customers love.

Second, we offer transformative capabilities with cutting edge performance and security. And our network offers three times the throughput of other Cloud providers. Third, we remain, and were, the very first and only Cloud provider with a clear, multi-cloud strategy.

We provide you with a consistent developer experience built on open source to write once and deploy anywhere. Many customers like Plaid, a financial services leader, use Anthos to deploy, operate and manage applications across multiple clouds.

Recently, we introduced Anthos for virtual machines, standardizing the way that you manage applications across both virtual machines and containers. For multi-cloud data, BigQuery Omni lets customers analyze data across Google Cloud, AWS, and Azure.

With it, Johnson & Johnson, was able to combine data in Google Cloud and AWS S3 using BigQuery Omni without needing to migrate data. Customers also want to expand where they use Google Cloud, whether in their private data Centers or out on the edge.

For instance, some workloads cannot move to the public cloud entirely due to the need for large amounts of local data Processing, extremely low latency, or strict regulations. To solve these challenges, we're announcing today, Google Distributed Cloud, a portfolio of hardware and software solutions that extend our infrastructure to the edge and even into your own data center.

To tell you more about it, please welcome Ines from our Google Cloud Distributed Cloud Team.

Ines Envid

Thank you, Thomas. Google Distributed Cloud is a set of fully managed services running on Google managed hardware. Based on open APIs and built on Anthos, it gives customers greater deployment flexibility and ensures more consistent operations across hybrid and multi-cloud environments more than any other cloud provider.

There are four deployment scenarios depending on your specific needs. Google's network edge. This allows customers to leverage over 140 network edge locations around the world. Operator edge. This scenario is designed to accommodate emergency services and applications with a stringent latency and reliability requirements for a specific operator. Customer edge, this scenario supports customer's own edge locations such as retail stores, factory floors, or branch offices, which require localized compute and processes. And finally, customer data centers. This deployment option is specific to customer-owned data centers and co-facilities.

Google Distributed Cloud also includes a hosted mode to run sensitive workloads and address data, sovereignty, security, and privacy requirements. It does not require connectivity to Google Cloud at any time to manage infrastructure, services, APIs or tooling. You have the choice to manage it yourself, or host through a designated trusted partner.

Back to you, Thomas.

Thomas Kurian {BIO 3811076 <GO>}

Thank you, Ines. Partners like HPE, Dell, Cisco and NetApp are key as we deploy Google Distributed Cloud globally on best-of-class hardware. I am pleased to announce the expansion of our partnership with NetApp in two important ways. First, NetApp is our primary partner supporting Google's Distributed Cloud storage infrastructure. Second, for customers using Google Cloud VMware Engine, they now have preview access for NetApp Cloud Volumes.

We are the only hyperscaler to provide customers with this choice. Deep partnerships with T-Systems and Thales have also enabled us to address the evolving sovereignty requirements for Cloud technology in Germany and France. The next question we hear is, how can we provide the best environment to help employees create and innovate together, especially in a hybrid workplace?

Hybrid is redefining how we all work, making it less about where we work, but more about the quality of our experience. Studies estimate that more than 48% of employees will work remotely post-COVID. Google Workspace is the best platform for hybrid Work with Simple, powerful and secure tools to help people communicate and collaborate with one another, no matter where they are.

We introduced Smart canvas to help content creators remove friction from work flows and enable teams to stay connected outside of meetings to foster well-being and reduce video call fatigue. We made communication and Collaboration completely seamless.

For instance, users can easily present and collaborate in meetings, create meeting notes from the Calendar, present in Meet directly from Docs, Sheets or Slides, and collaborate directly from Chat and Spaces. We optimize collaboration from all mobile devices to provide great experiences for frontline workers, who make up 80% of the global workforce.

One of America's largest hospital systems, CommonSpirit Health, is advancing its patient care mission during the pandemic by making its frontline doctors and nurses productive with Google Workspace. Since hybrid work has removed the notion of a physical location for work, Google Workspace created Spaces, a unified digital location for work.

Today, more than 3 billion users move securely and seamlessly between Mail, Chat, Audio, Video and now Spaces. And you, too, can choose among the over 5,300 public apps in our marketplace and you can also add thousands of private apps to enhance your workspace.

Now, I want to step aside for just a minute and tell you about a hidden secret in our portfolio products. AppSheet. Our local platform that makes it easy for everyone, not just professional developers, to build amazing apps and workflows.

For instance, property managers at Crawford Properties [ph] use the AppSheet to build a mobile app to log, track, and resolve problems with headquarters. Replacing a multi-step manual process. We're also partnering with Citrix, because employees sometimes need access to windows and Mac OS applications and desk tops, directly served from the cloud. We're expanding our partnership with Citrix today to deliver an integrated desk top as a service solution, purpose built on Google Cloud.

Now customers ask us, do we know that our data, systems and users are secure? And how do we keep them secure in the future? You know, as more digital users access more data from more locations, the risk of cyber security breaches is accelerating. By pioneering new approaches to security, Google keeps more people safe online than anyone else in the world.

Take, for instance, JetBlue. It's keeping its systems secure, protecting the data of all its travelers, and modernizing its security operations using Chronicle to detect threats across petabytes of security telemetry, and eliminating data blind spots.

Commerzbank, one of Germany's largest banks, is using our new Certificate Authority Service to verify machine and workload identity, improving security, simplifying operations and eliminating entire classes of threats. Secure-by-default

drives customers to choose Google Cloud. First, we have implemented zero trust at the core of our services and our operations, enabling you to trust nothing.

Second, we have built cloud-scale threat detection and response, allowing you to detect everything. And third, we know it's not just about tools. We provide the advisory services you need to transform security operations. We keep customers safe with BeyondCorp Enterprise which enables Zero Trust Access for all users. Today, we're expanding Beyond Corp to all your applications, modern and legacy, Web and desk top, and even to production environments.

We keep customers safe by eliminating software supply chain vulnerabilities. Over the past two decades, we pioneered an approach to secure our own software supply chain. We are now making that technology available through the SALSA open source framework, and as managed services in our cloud to help you secure your own software supply chain.

We keep customers safe by integrating chronicle's threat detection capability, with our security Command Center, allowing you to respond faster to potential risks. And we keep customers safe by bringing our security expertise to you with our Google Cybersecurity Action Team, a team of our leading security experts who can help shape your security transformation, from your very first implementation, through responding to a major incident, and engineering new solutions as needs change.

Finally, we continue to expand our secure ecosystem, with companies like Fortnet, Palo Alto Networks, Thales, and so many more. Today, I would like to welcome a new security partner, Cybereason, with whom we are collaborating to deliver a new extended detection and response offering that will combine Chronicle's capability with Cybereason's MalOps engine for faster, easier threat detection and response.

Our products, our new Cybersecurity Action Team and our partnerships all make the world safer from cyber threats. To talk more about how we help keep each and every one of you secure, and how we're addressing some of the most important challenges facing our world, I'd like to invite Sundar back. Thank you.

Sundar Pichai {BIO 15004624 <GO>}

Thank you, Thomas. Security is top of mind for businesses of all sizes, as well as the public sector. And despite the progress that has been made in cybersecurity, large scale breaches continue to make headlines.

That's why, in August, Google announced we will invest \$10 billion over the next five years to strengthen cybersecurity. That investment includes expanding zero-trust programs, helping secure the software supply chain, and enhancing open-source security.

A new challenge is keeping collaboration secure and private, as we move to hybrid work environments. To help, we're introducing a new Work Safer program. It

provides the highest level of security for your email, meetings, messaging and more, and brings together Google Workspace with Titan Security Keys, BeyondCorp, and other secure technologies, products and partners.

Now every kind of organization and business can access the same security protections that make work safer at Google. Security is an issue that affects us all. And this brings us to the last question Thomas posed. Are we addressing the most important challenges facing our world? Climate change is one of the most profound challenges we face, and it will take all of us working together to solve it. Sustainability has been a core value for us for more than two decades.

Google has been carbon neutral since 2007, and we've matched our operations with 100% renewable energy over four consecutive years. Last year, we set out to make our third decade of climate action our biggest yet. That included a bold commitment to operate on 24/7 carbon-free energy across our offices and data centers by 2030.

And last week, we announced new ways we're helping one billion people make more sustainable choices. When it comes to enterprises, one of the most important sustainability choices is where to run your technology. IDC predicts Cloud migrations, over the next four years could reduce carbon emissions by over 1 billion metric tons or the equivalent of removing 200 million cars off the road for a year.

We are proud that Google Cloud is the cleanest cloud in the industry. Earlier this year, we introduced a way for customers to choose the cleanest regions to run their workloads. Today, we are expanding our portfolio of solutions and partnerships to help reduce your carbon footprint.

First, we are focused on giving you greater transparency around carbon emissions data. We are announcing carbon footprint, a new service to measure, track, and report the gross carbon emissions associated with your Google Cloud usage. Having this data at your fingertips is really important. And we know that many customers track sustainability data in other places. That's why I'm happy to announce that Google Cloud emission data will integrate directly into Salesforce's Sustainability Cloud.

We also want to give you the tools to act on that data. So today, we're introducing a new tool that will alert you when you have idle workloads and make recommendations to reduce carbon emissions. It's all part of our goal to help make your Cloud transformation secure and sustainable, and solve for what's next.

So on behalf of Thomas and myself, let me thank you once again for trusting us to be a partner with you on this journey. And we hope you enjoy the next three days. Thank you.

Stephanie Wong {BIO 19738557 <GO>}

Hello and welcome to our very first spotlight. I hope you enjoyed the opening keynote. For the next hour, we will be diving in to all things data. I'm Stephanie Wong, a developer advocate, and I'm here with Gerrit Kazmaier, who leads database, analytics, and BI solutions at Google Cloud.

Gerrit Kazmaier

Thanks, Stephanie. I am very excited to be here, and to share with everyone what we have been working on. The team thought we start on the light side of things here, and start with a joke. One of my favorite jokes, actually. So here it goes. A SQL Query walks into a bar and approaches two tables and asks, can I join you? Okay. I guess I guess we roll the video instead.

(Presentation)

Stephanie Wong {BIO 19738557 <GO>}

And welcome back. So, what are we solving for today? This spotlight session is about how to leverage data as your most strategic business asset, especially as you adapt to and anticipate change.

Data has the power to transform stagnant businesses into profitable ones, streamline operations to improve people's lives, and identify areas of waste to radically reduce unnecessary spending. It can be used to solve businesses and world problems, both the simple ones and the ones that keep people up at night.

It has the potential to accelerate progress faster than a think tank or world summit. And it's largely untapped. As you learn more about Google Cloud capabilities and make progress on your data Cloud journey, you can unlock your own 10X mindset as external factors accelerate the pace of change.

Never before have we faced this much uncertainty, and now is the time when every company can turn data into an ability. The reality today is that too many companies struggle to remove the barriers to turn data into intelligence.

Gerrit Kazmaier

This is exactly what we are seeing with our customers, turning data into intelligence and delivering value is no longer a nice to have. It is essential. A recent study shows that only 32% of the companies surveyed gain value from their data investments, and this is the result of difficult-to-access, slow, unreliable, complex and fragmented systems.

Many companies just feel overwhelmed with the demand for the various types of working with data and of doing it at scale. They feel walled in with a lack of integration, a lack of openness, a lack of portability, and very poor APIs.

It is time to re-imagine our data cloud strategy that is unlocking your data advantage. Build great applications that understand and interact with your customer, and operational databases that scale to billions of queries per second, react on any event in real times and process millions of data streams, analyze petabytes of data without sizing or tuning your data warehouse anymore, and ultimately, optimize your processes with hundreds of machine learning models in production.

This is how you unlock your data cloud and unlock your data advantage. To build your data cloud, you need your systems to be simple. And this requires a partner that meets you where you are today and helps you to mature where you want to be, but at your own pace.

Making the complex simple is our business. It has been for decades, building systems that mask the complexity of the entire internet behind a simple, single interface, and building applications with billions of users. It all runs on data and analytics. So, you can say that data is our DNA, and we can't predict the future, but we can plan for it.

And we are deeply grateful to work with tens of thousands of organizations who built their data clouds on Google Cloud and unlocked ultimately their data advantage from databases to analytics to streams to lakes to AI, and built a unified data cloud together with us.

Stephanie Wong {BIO 19738557 <GO>}

It's leaders like you who are accelerating their use of data to transform complexity into simplicity. This week at Next, you'll hear from leading organizations that have chosen Google Cloud for their data Cloud strategy over market alternatives.

Verizon Media is one of these customers. Verizon uses BigQuery and Looker to scale their massive enterprise media warehouse, supporting monthly scans of more than one exabyte of data. The performance improvements include 90% plus productivity improvements across the board and lower overall TCO compared to other cloud providers.

Almost overnight, traffic to Chess.com tripled. The pandemic and successful series, "The Queen's Gambit" created a perfect storm. Ten years' worth of growth occurred in just six months, and daily active users rose from 280,000 to more than one million.

There's no way to handle that surge without the move to Google Cloud. Using BigQuery's near infinite ability to scale in response to demand, this meant that Chess.com didn't have to forecast site traffic and worry about unexpected surges or waste money by over-provisioning servers that go unused.

Gerrit Kazmaier

Take AutoTrader. It's U.K.'s largest online automotive marketplace and they were able to migrate more than 60% of their current Oracle footprint to Cloud SQL. AutoTrader builds their data cloud by leveraging Cloud SQL, BigQuery and Looker to deliver access to their data to all of their users.

And with Cloud SQL as a fully managed service, AutoTrader release cadence has improved by over 140% year over year, enabling an impressive peak of more than 450 releases to production on a single day. And this is how you build your data advantage.

Stephanie Wong {BIO 19738557 <GO>}

When Cardinal Health migrated to Google Cloud, they enabled disaster recovery, increased their ability to respond to business challenges, and leveraged machine learning to drive business efficiencies, all while reducing their cost by 25%.

We would like to welcome Ray Bajaj, CTO of Cardinal Health to share their data transformation story. Ray, thank you so much for joining us here today.

Ray Bajaj

Thanks, Stephanie, and I'm really happy to be here today. Cardinal Health is a pioneer in healthcare industry for leveraging the cloud as our primary source of infrastructure, achieving our cloud transformation journey goal with more than 80% of our workload fully migrated on to the cloud.

Our journey to Google Cloud started in 2018, leveraging the security and flexibility of Google Cloud allows us to scale and innovate at lower cost, which empowers the organization to focus on building the future of healthcare and driving better outcomes across the healthcare ecosystem.

Questions And Answers

A - Stephanie Wong {BIO 19738557 <GO>}

So, why Google Cloud?

Q - Ray Bajaj

With Google, we can deliver modern data insights capabilities to our engineering teams so that they can transform our whole business, while also improving the customer experience, helping the organization evolve in adjacent areas of healthcare.

We also selected Google Cloud because of its ability to partner with SAP and run massive ERP workloads reliably.

A - Stephanie Wong {BIO 19738557 <GO>}

Now, what outcomes have you been able to realize as a result of this?

Q - Ray Bajaj

We leverage Google's Looker and BigQuery to develop episode analytics, a data-driven, predicted cost-tracking tool that enables community and quality practices to accurately measure the cost of care and provides clearer insights into value-based performance.

A - Stephanie Wong {BIO 19738557 <GO>}

Well, Ray, Cardinal is clearly at the forefront of these shifts, and we can't wait to see what's in store for you. So, thank you so much for being here with us today.

Q - Ray Bajaj

Thank you.

+++presentation

A - Stephanie Wong {BIO 19738557 <GO>}

Organizations like Cardinal Health are solving complex challenges with Google Cloud. But what is holding others back from using data to accelerate innovation?

Companies are looking for solutions that can simplify their data landscape to move from a state where every scenario requires a new tool to an agile platform that combines data analytics, databases, data engineering and science, security and governance into a single platform. To move from data at rest to a platform where data is accessible in real-time.

A - Gerrit Kazmaier

Our vision is to provide a platform that allows data to unfold its full potential. Ultimately, enabling us to reach new horizons ranging from newly built digital experiences, products and business models could advance machine learning and AI to ultimately empowering humans to reason beyond their own biological capacity.

And we have built the industry's most simple, intelligent and best integrated cloud data platform that enables businesses to fuel their own digital transformation. And this is how you unlock your data advantage, to seize new opportunities, improve operational efficiencies and deliver new use experiences that delight customers, partners and your employees.

Thanks to you, our customers and partners, Google's data platform is one of the fastest growing clouds fueled by the demand for products like BigQuery. And here comes the most exciting part. Today, we are excited to announce a number of new product innovations. And the first announcement goes out to all of the data engineers in the world who are using Spark on Google Cloud.

Open standards are at the heart of our Data Cloud strategy, and at Google, we follow an open approach that enables flexibility and choice. And today, I'm excited to announce Project Big Spark. It is the world's first autoscaling serverless Spark service in existence. And regardless of whether you are a BigQuery user, a Dataproc user or a cloud AI user, we have created an integrated ecosystem around Spark that the factor standard for data engineering workloads.

We want to make it easy for you to onboard on our platform of Spark and never limit your ambition with data science and data engineering.

A - Stephanie Wong {BIO 19738557 <GO>}

Our long history in the open source community has shown us that betting on the community first is always the right strategy to give our customers portability and optionality. We're excited to make Spark a first-class citizen on our platform and to automate the productionalization of your data engineering and data science workloads.

A - Gerrit Kazmaier

The next announcement goes to all of the data scientists. As enterprises consolidate their data platforms, the distinction between advanced analytics and data science and machine learning is really diminishing.

Today, more than ever, data scientists are looking for unified interface to be able to seamlessly connect their entire data estate, and also run all explorations with SQL, Spark and auto machine learning libraries. With Vertex AI, we have simplified the experience for data scientists with 80% less code required to train a model compared to any other platform.

As a product of Google's Vertex AI's credit sheet, I am happy to announce the preview of AI Notebook for Vertex AI that offers a fully managed, scalable and enterprise-grade IDE combined with easily enforceable policies and user management.

A - Stephanie Wong {BIO 19738557 <GO>}

These AI Notebook innovations are great examples of Google bringing together the power of data and AI. Google truly aims to fast-track innovation by eliminating the need for data scientists to shift context between aspects like data analytics, data science and machine learning.

A - Gerrit Kazmaier

That is right on. And here is an exciting announcement to all of the developers. We are adding a Postgres interface for Spanner, which continues our commitment to openness and reinforces our efforts to democratize the access to Spanner.

With this new Postgres interface, enterprises can take advantage of Spanner's unmatched global scale, five 9s of availability, and strong consistency using skills and

tools from the popular Postgres ecosystem. And starting today, you can create a Spanner database that uses PostgreSQL dialect and connect with its open wire protocol. This interface supports Spanner's rich feature set using the most popular Postgres data types and SQL features, and thus, democratizing access to Spanner for millions of developers out there.

Our commitment to the ecosystem has been longstanding with ongoing support for Cloud SQL, for MySQL, Postgres, and SQL Server, so you can lift and shift your databases. Our mission with Cloud SQL is compatibility, and we were the first cloud provider to support Postgres 13.

A - Stephanie Wong {BIO 19738557 <GO>}

These announcements are so exciting because Postgres has emerged as a popular choice for operational databases. Postgres is known and loved for its stability and feature set and has built an active and growing ecosystem of developers and tools. Our investments in Postgres are a step in the right direction to continue meeting developers where they are with the tools they love.

A - Gerrit Kazmaier

We are excited to announce new ways to help organizations going beyond traditional business intelligence to analyze, access and act on data. Looker continues to integrate with the other offerings in our portfolio, as well as continues to innovate with our core product.

And to address the needs, we are continuing to simplify the experience across BigQuery, Looker and Data Studio, together with Connected Sheets. Today, we are announcing new enhancements which bring the reality of augmented analytics to more people with Looker solution for Contact Center AI to help businesses leverage AI and converse naturally with customers and deliver outstanding experiences.

We are also announcing a new Looker Block for healthcare NLP AI, which creates a user interface to advance AI and natural language functionality, and this helps healthcare providers to gain deeper understandings of their patient data.

A - Stephanie Wong {BIO 19738557 <GO>}

Part of the secret sauce lies in Looker's in database architecture and semantic layer which makes it possible for business users to trust data no matter how they experience it via a dashboard, E-mail or text alert or even a custom application.

We are excited for these recent innovations, but we couldn't do this alone. Together with our community of customers, partners and developers, we are delivering innovation across a variety of use cases. We are able to create new solutions and accelerate your journey to transform data in to value.

A - Gerrit Kazmaier

Next, I want to announce an important partnership with Informatica. We have partnered with Informatica to help hundreds of customers succeed with their journey to the cloud.

Together, we are helping customers move mission critical workloads to the cloud and integrate with Google Cloud technologies, such as BigQuery. Today, we are excited to announce that we are deepening our partnership with Informatica even more.

First, for existing Informatica power center customers, we are so pleased to announce our migration factory, which will help to accelerate migration of data-driven workloads to Google Cloud with Informatica Cloud.

Second, we are pleased to announce our new services on Google Cloud's Marketplace, which will include Informatica's integration and enterprise data catalog offerings.

And we are continuing to invest in key product integrations with databricks. Our engineering and product teams continue to work together to deliver the joint road map, and we have multiple customers using our latest enterprise security and performance enhancements of databricks on GKE.

In Q4, we will also deliver databricks SQL, databricks photon on Google Cloud, as well as we are launching new datacenter regions together in EMEA and APEC. Our AI teams are engaged to allow customers to experiment and develop models on databricks and Vertex AI together and deploy models at scale in to production with Vertex MLOps suite.

A - Stephanie Wong {BIO 19738557 <GO>}

So much goodness. Okay. Before we get into the live demo, I recommend tuning in to more sessions to hear from all our customers this week. Join the chief data officer panel discussion and listen to our product strategy sessions for database, data analytics, BI and AI.

A - Gerrit Kazmaier

We can't wait to hear from you, connect with you. Join us in our community and share your expertise and ask your questions. But most importantly, start to build your data cloud and unlock your data advantage.

Okay. Time now to get hands-on and check out our products in real action. Join us for live demo and interact with our experts and one another, and then stick around for the live Q&A following the demo. I'll see you there.

A - Leigha Jarett

Hi, everybody, I'm Leigha.

A - Nikita Namjoshi

And I'm Nikita.

A - Leigha Jarett

And welcome to the Data Cloud live demo. If you're just joining us from this morning's keynote and spotlight, you heard some of the latest innovations we launched, Earth Engine, Spark on Google Cloud, PostgreSQL interface for Spanner, and Vertex AI Workbench, all to help organizations (technical difficulty) complex patented [ph] data system and simplify them, bringing together data on a massive scale to explore a real-world scenario for climate and supply chain analytics.

A - Nikita Namjoshi

In order to do this, we're going to need the whole data team. Say hi, everybody.

A - Brad Miro

Hello. I'm Brad.

A - Derek Downey

Hi. I'm Derrick.

A - Brad Miro

Now, a quick reminder. This demo is truly live and you can engage with us directly. So, ask questions, say hi in the chat window, and hit those emojis.

A - Leigha Jarett

I think I see some coming in now. I see lots of hearts and fire. A lot of people saying hello in the chat. Thanks, everyone, for joining us today. So, if you can't see this or the chat, just go back to the Next Event Website and click on the blue Join the Interactive Experience button.

A - Nikita Namjoshi

Okay. Okay. You're actually joining us for our weekly stand-up at Cymbol Superstore, a fictional U.S.-based grocery chain focused on sourcing from local producers. Like many different industries, we need to bring in together disparate data sources to build resilience.

Specifically, for us, drought in the western U.S. has impacted our producers, and our supply chain has been disrupted with decreased shipments week over week. We need to better understand how to manage inventory to prevent stock-outs, and ensure we can scale in both how we analyze information and how we run our transactions.

A - Leigha Jarett

All right, team. So, to address this supply and scale challenges that Nikita just mentioned, we have four different workloads. First, I'm going to evaluate the best climate information to identify at-risk producers. Then, Brad will mature our data pipelines to transform that data. Next, Derek will dig into scaling our transaction processing. And finally, Nikita will show how we're gaining new insights by evolving our data science capabilities.

A - Nikita Namjoshi

Let's get into it and let's keep hearing from all of you out there, our data pros. Leigha, you're up first.

A - Leigha Jarett

Great. Thanks, Nikita. So, in order to gain insight into our supply chain, first, I need to evaluate the risks. So, I'm focusing on figuring out how drought impacts the very source of our grocery products. And to do this, I turn to Google's platform for earth science data and analytics, Earth Engine, which has a huge catalog of satellite images for things like climate, weather, crop lands and much more.

There's currently over, like, 50 petabytes of data in the catalog. Plus, more and more images are added each day. So, let me just go ahead and bring up this cool little application that I built using the Earth Engine Code Editor so I can walk you through the three datasets we'll be using today.

First is going to be crop data from the USDA NASS Program, which I can grab right from the public data catalog by searching. This dataset is going to contain one image of the U.S., here, going back all the way to 1997. And each ten-meter pixel in this image has actually been assigned a crop type.

Let me just close that. The second dataset contains the outline of agricultural fields and we're going to use Earth Engine to assign each one of these fields the crop type that is most prevalent among the sales that cover it. So, in this view that I'm showing right here, the pink fields are alfalfa and the dark green fields are almonds.

A - Nikita Namjoshi

Leigha, these visuals are super helpful, but can we export this data for analysis in other environments?

A - Leigha Jarett

Yes. I'm actually going to push this into Cloud Storage and BigQuery in just a sec. But first, I want to add in some additional signals on drought.

So, this third dataset that I'm using is a collection of both short and long-term drought indicators, meaning that we can see what drought looks like for each field time. Now, using datasets like this does require some deep subject-matter expertise.

So, special thanks to our real-world partners at Climate Engine who build solutions on top of Earth Engine's API, helping organizations ground their analytics projects with scientifically accepted methodologies.

Okay. So, you just saw how we used geospatial data and I want to know how you use it in your analysis. So, go ahead and answer that poll so we can see. All right, everyone. So, with these layers in place, we can start exploring drought risk. Let me just go ahead and zoom to this field.

And here, I'm going to show an almond orchard northeast of Modesto, California and overlooking that is the long-term drought indicator. So, this orange tint that you're seeing means that this field has experienced pretty high levels of drought over the last five years.

Now, if I go ahead and just zoom out a bit, we can actually see that the entire Central Valley in California is pretty drought stressed. So, my last step was to calculate drought risk for each of the fields I showed before and this will tell us which farms and produce types are potentially at risk for not meeting customer demand, which is just one consideration to inform symbols resilient strategy.

Better yet, we can incorporate this geography data with other spatial stuff like store and customer locations that are already inside of BigQuery. And anyone who knows me knows that I love BigQuery. If you agree, let me see in the emojis.

All right. So, the code editor has been great for interacting with Earth Engine, but making these calculations at scale requires a different approach. So, I went ahead and created Earth Engine tasks for batch processing to run these calculations over all the data in five-day increments for 10 years.

I also set up a cloud function to run every five days going forward so that we'll always have fresh data. Now, just as a quick recap, we jumped into Earth Engine to evaluate earth science data that indicates climate risk for our farm fields.

Now, we'll have fresh drought data available in Cloud Storage. So, just think of the power of integrating huge amounts of specialized data giving us a complete picture of supply risk for our business.

And I think I can see the poll results coming in now. It looks like lots of people are using geospatial data for all different kinds of things, and if your answer wasn't in the poll, just go ahead and let us know in the chat.

So next up, Brad will transform and push this data into BigQuery for geospatial analysis with our existing data. So, Brad, over to you.

A - Brad Miro

Okay. That was pretty cool, Leigha. Thanks. All right. So, to gain more insight in to how drought is impacting production, my main focus has been building out the data transformation pipeline to push farm field drought indicators from Cloud Storage into BigQuery.

Speaking of batch processing, as you know, to assist with inventory management, price optimization and product assortment, we use Spark to standardize our large-scale data processing and we Google Cloud Dataproc as our long-running clusters.

For you Dataprocs out there, we'd love to know how you're using Spark today. So, let us know while I go ahead and pull up the Cloud Console. So, here is a Dataproc cluster we currently use to schedule high Spark gaps. (Technical difficulty) cluster with price bar code. This code is typical boiler plate code, right, to do basic data transformations.

In this case, we are processing the Earth Engine files from Cloud Storage performing type checking and mapping to ensure proper ingestion into BigQuery using the Spark BigQuery Connector.

A - Leigha Jarett

Okay. So, this is pretty cool, but I think having a batch work flow that's scheduled on a continuously running cluster seems like it can be kind of wasteful. So, is there any way we can make this more efficient?

A - Brad Miro

That's a fair point, Leigha. There is still some overhead in management here, and for hardened batch cases like this, it would be preferred to have these jobs run on their own discrete resources.

Good news, with the new serverless option for Dataproc, we can submit a price work job without spitting up any infrastructure. These automagic [ph] capabilities, I can spend more dev time writing code and less time on managing infrastructure.

A - Leigha Jarett

All right, Brad. First off, I'm pretty sure that you just set me up for that, and second, you definitely made up that word, automagic.

A - Brad Miro

Yes. But can I get some emoji love for that? Anyway, I'll now go ahead and export this notebook to a Python file using NB convert. Okay. And next, let's go and use the Cloud SDK to submit a serverless price Spark job. We can use the Dataproc API and call batches to submit a serverless job.

So, I'm showing you here a price Spark job but I can also submit Spark jobs in (inaudible) or SQL. With auto provision and auto scale, no infrastructure configuration is needed. This helps (technical difficulty) powerful distributed data

processing model. With these capabilities, there's no need to manually create into clusters.

So, once I've submitted (technical difficulty) some long-term gap data and then some (technical difficulty) to a new solution for creating long running clusters or a place where our infrastructure team can manage Dataproc clusters. Now, fortunately, we feel that Spark and GKE is our use case and let's just utilize our existing GKE infrastructure.

So, clearly, it's been a busy week for me using Spark serverless to create pipelines to push drought data into BigQuery. But the efficiency and improvement we'll gain but not needing to manage cluster overhead will be worth it. Now, you can let me know in the chat if you're as excited about Spark serverless as I am.

A - Nikita Namjoshi

Okay. Let's see how everyone's using Spark today. Looks like notebooks are pretty popular.

A - Leigha Jarett

And automation through air flow. That's cool, too. Okay. Great. Thanks so much, Brad. So, now that we have greater insight into supply risks, we need to scale our transaction systems to handle more orders and allow us to understand the potential business impact of these climate risks while hopefully while lowering costs.

So, this brings me to Derek, DBA. Derek, you've been focusing on this effort. So, can you let us know where you're at today?

A - Derek Downey

Yes. Absolutely, Leigha. We have a new grocery chain that has struggled to maintain their on-prem databases as they've grown. There's an opportunity to solve their underlying scaling problems with Cloud Spanner. I spent the last few weeks validating Spanner's ability to scale and the ease of maintenance while keeping strong consistency for this point of sale workload.

I migrated some of the new chain stores to Spanner already. Using granular instant sizing, I only provisioned a portion of a Spanner node to handle the required load. As we move the remainder of stores, we can easily scale up without down time or app changes.

A - Nikita Namjoshi

Quick question, Derek. We've been really focused on reducing the cost and complexity of building scalable applications. So, I'm wondering how does adding Spanner impact that effort?

A - Derek Downey

Yes. That's a great question, Nikita. One way we've been doing this in other environments is to standardize on Postgres. Postgres is a well-established open source database with an active ecosystem that our development and ops teams are already familiar with.

I tried to get the team to add an elephant emoji so you all could show some love for Postgres, but anyway. Spanner just announced the PostgreSQL interface. This gives us the benefits of Spanner without having to complete retrain our application teams.

Having this data will help us maintain velocity for new features, even as our database needs evolve. Here. Let me show you. So, I've connected into our Spanner instance using the PSQL command line tool. From here, I can explore the schema, just like I would in any other database, any other Postgres database.

You can see that both the Postgres data type and the Spanner data type is available to the information schema. So, this will make it familiar to anyone who already knows Postgres.

A - Leigha Jarett

Awesome. Thanks, Derek. This is really cool (technical difficulty) for the scalability that this is going to bring our team.

A - Derek Downey

Absolutely. And as a quick summary, I highlighted how Spanner allows us to get started small and scale as needed using granular instant sizing, and how the new PostgreSQL interface reduces friction for our teams already familiar with Postgres.

Nikita and Leigha, using existing data is golden and I'll keep onboarding more stores. Nikita, I believe you need this data for some of the BigQuery analysis you were working on. You've been busy figuring out how to evolve our ability to make sense of all this data. Can you show us how that works?

A - Nikita Namjoshi

Yes. Absolutely. I was hoping that you'd ask. So, to ensure that we're managing stock to meet customer demand, my focus this week was on evolving our data science case for exploratory analysis. I combined the transactional data that Derek has been working on with the job data that Leigha and Brad pushed into BigQuery. This way, we can gain insight into which products are most at risk of not meeting customer demand.

So, my first step was to integrate all of our transactional data within BigQuery, primarily using federation with Cloud SQL and Spanner. This provides a unified environment for aggregation and analysis where we can join transactions back to producer details and the associated drought risk scores.

Now, as you all know, we recently migrated to workbench, which has really, really helped with our basic compute and resource management.

A - Derek Downey

Quick question, Nikita. Is Vertex AI Workbench (technical difficulty)?

A - Nikita Namjoshi

That is an excellent question, Derek. Vertex AI Workbench contains recently updated managed notebooks to bring forth more integrated data engineering capabilities into our data science environments. So, we can ingest and analyze data and deploy and manage ML models all from one spot.

Now, let me show you a little bit about what this makes. After I provisioned the new managed notebook, my first task was to analyze the demand on the high-volume SKUs and for that, I used the BigQuery connector to view and query the sales data.

With Vertex AI Workbench, I can inspect BigQuery metadata, preview tables, and automate basic SQL construction entirely from my notebook environment. Okay. It's my turn on the emojis. I want to see the fire emoji for (technical difficulty) who are as excited as I am about being able to access BigQuery from the notebook interface. Looks like I'm not the only one.

A - Brad Miro

Hey, Nikita, hold on. Sorry to interrupt your emoji fest, but I see you're working out of the lakes project but are able to pin other projects you have access to like the ops project. Is that new?

A - Nikita Namjoshi

Yes. That's correct, Brad. Vertex AI Workbench actually enables me to interact with all services via my own identity. The BigQuery plug-in also provides some templated code to help build out queries and project results to pen this data frame.

So, here, we can see -- it looks like I just need to refresh. Sorry about it. I'm just going to refresh my JupyterLab instance here. I guess I had it open for too long.

A - Leigha Jarett

And I guess while Nikita is doing that, like who uses Jupyter now? Let's see the fire emojis lighting up. I see some now. I personally use it a lot in my day-to-day.

A - Nikita Namjoshi

All right. Thanks, Leigha. So, perfect. You can see a simple view of all transactions by the day of week. And Vertex workbench actually also allows me to launch different kernels entirely in the same instance. So, Brad, I think you are working out of a price Spark notebook earlier, is that correct?

A - Brad Miro

Yes. So, the data (technical difficulty) at the back end as a part of Spark on Google Cloud. We can access all supported kernels on the cluster, including high Spark.

A - Nikita Namjoshi

Well, from my analysis, I just needed a Python kernel. So, let me show you what's going on in this notebook and what I've been up to this week. You can see here that I've done a deep dive into the data. I plotted the transaction volume. I've created a heat of purchase accounts across various departments (technical difficulty) the short-term drought index across various crop types, like corn, dry beans, pears and rice.

But my last task, and the most important task, was to map SKUs to suppliers and calculate a risk score based on the aggregate field data. So, to do this, I started with our mapping table, which you can see a sample of right here. This helped me to determine (technical difficulty) and I calculated a weighted risk score that takes into account each product's demand and the associated farms' overall drought risk, and you can see each of these measurements in this data frame right here.

Ultimately, this goal will help us to prioritize managing items where we're most at risk of not meeting customer demand. So, as a quick summary, I use (technical difficulty) to connect active data accessible for query and create a weighted risk score for each one of our products, combining both climate and demand data. Leigha, I went ahead and put all of this back into BigQuery just to keep it centralized.

A - Leigha Jarett

Awesome. Thanks so much, Nikita. That risk score is going to be huge in helping our team understand supply risk. So, to make sure the broader team has a trusted view of all this information, I started incorporating everything into a Looker dashboard.

Now, with Looker, we define our metrics like average risk using LookML, Looker's data model, and Looker uses this to compile SQL queries and send them back to BigQuery on our behalf so that our non-technical users can explore the results of these efforts.

So, let me show you this dashboard that I've been working on. And first off, you can see this custom map layer that I use to visualize drought risk across farm regions in the west and we're able to take (technical difficulty) geospatial functions and drill from this aggregate view all the way to producer or even grocery prepped level. Let me show you.

So, I'll drill to fields ID and then I can jump right in to Looker's explorer to bring in some more (technical difficulty). Maybe I want to specifically look at products that are at risk in this region where we're quickly expanding.

A - Nikita Namjoshi

Making all this data accessible to the broader team is really important. So, can we make sure that the marketing team is aware of this so that they know how to hold off on coupons or advertisements for these products?

A - Leigha Jarett

Yes. Actually, we can set up a schedule from Looker so that the regional marketing teams are always notified if new products seem to go at risk. So, putting this all together, we used Earth Engine to process new earth science data signals. We used Spark [ph] to efficiently transform geospatial data and push drought indicators into BigQuery, Spanner to scale our transaction systems, ensuring we have the infrastructure to handle future growth, and Vertex AI Workbench plus Looker backed by the power of BigQuery to evolve our data science capabilities and service important trends back to key decision makers.

So looking across the services, anyone is able to explore and take action on insights that combined climate data and transactions. Now, we can understand where products may go out of stock due to increasing drought conditions, and identify areas to build resilience against changes in our climate. So with this geospatial information we're given a whole new set of data so that we can not only be considerate of our customers, but also find ways to be more considerate of our planet.

And with that, it looks like we're right about at time. So thank you so much for joining us today as we've shown how Google Cloud can offer a world-class experience for creating a scalable, unified data platform. And a special thanks to my colleagues, Nikita, for showing us Vertex AI Workbench, Derek for introducing us to Spanner and its Postgres interoperability, and Brad for walking us through Spark on Google clouds.

A - Nikita Namjoshi

And thank you, Leigha, for showing us Looker and Earth Engine. Last but certainly not least, thank you all out there so much for your engagement. We love those emojis and seeing all of your comments in the chat. So stay tuned for our live Q&A which is going to cover everything from our spotlight through this demo.

A - Leigha Jarett

Thank you. Bye.

A - Nikita Namjoshi

Thanks, everyone.

A - Brad Miro

Thanks.

A - Derek Downey

Bye.

+++qanda

A - Dane Hanson

Thanks o much data cloud team. What a cool demo. I'm Dane Hanson. Welcome, everyone. I'm the director of Product Marketing for Data Cloud. Joining me today is Gerrit Kazmaier. Gerrit?

A - Gerrit Kazmaier

Hey, Dane. I'm Gerrit. I'm the Vice President of Data Analytics, Databases and Looker. And I do look forward to everyone's questions.

A - Dane Hanson

I do too. A reminder that this Q&A is live, you can engage with us directly. So ask your questions, say hi in the chat, hit those emojis, and if you can't, just go (inaudible) the Experience button.

A - Gerrit Kazmaier

So let us jump right in. But before we do, I do want to see what you would like most today. So we have some quite exciting set of announcement, and is it for you Let's go BigQuery, is it Big Spark It Up, Postgres For All on Spanner, or is it Show Me the Earth Engine?

A - Dane Hanson

So while we wait for those results, tell me, Gerrit, what are you most excited about?

A - Gerrit Kazmaier

I'm really excited about two things; openness, and simplicity. All of our announcements were made to make data more accessible, more simple to use from Postgres for Spanner, from cross-cloud analytics with Omni, from serverless arch from Looker and Tableau, everything is in the spirit of making data simple to work with and creating an open ecosystem around GCP for working with data.

A - Dane Hanson

That's right. And being open and simple is really what it's all about and that's what we saw from the demo as well. Just as a reminder that our friends from the live demo are sticking around to help answer the questions. So you might see their faces throughout the show. It's like we've got some of the poll results. It's all about the BigQuery, look at those hearts come in. So this is really good.

A - Gerrit Kazmaier

It's Let's Go BigQuery.

A - Dane Hanson

All right. So let's get into our first question, it's from Tiana [ph]. She asked about the availability of Earth Engine. We saw the great demo earlier from the team. How can folks get their hands on this? How can they access it? And another follow-up question which is how does it work with BigQuery GIS?

A - Gerrit Kazmaier

Awesome. Hey, Tiana, awesome question. So first of all, Google Earth Engine is now in preview, which means that you can go to google.com/earthenginepreview and register, and we will be reaching out to you to set you up with an account.

The second key piece of what you've seen earlier is that; A, in Earth Engine, you have a data lake of satellite imagery, and you get the means to do geospatial analysis on imagery data. And that results, they can be brought into BigQuery to match them up with all of the data you have residing there or using BigQuery ML, for instance, as we have seen. So all in all, awesome packets, a lot of data and a great integration directly back into BigQuery.

A - Dane Hanson

I love this. And it's really what only Google can provide, with the best of our data and the best of our analytics solution. This is a great solution.

A - Gerrit Kazmaier

That's exactly right.

A - Dane Hanson

So another question comes in from Chris, multi-cloud, look, this is an exciting area. We just released BigQuery Omni as a general availability. That's exciting. What are Google's plans around data management? Does it have plans, Gerrit, to expand our multi-cloud approach to other data management services?

A - Gerrit Kazmaier

Great question, Chris. And I think it all starts from recognizing a basic fact, for the majority of companies, multi-cloud is a reality. And when we talk about data silos, we have to recognize that a modern data silo is a multi-cloud data silo. And at BigQuery Omni, we wanted to bring simplicity to multi-cloud, which means that you can do cross-cloud analytics. And we are constantly evaluating which of our data services make sense in an omni-delivery, and basically following our customer scenarios, where you are taking us to, and you can expect much more to come in that direction.

A - Dane Hanson

This is great. We really go forward with multi-cloud as more and more companies are using that as their norm.

A - Gerrit Kazmaier

I think it's 90% of the companies that you surveyed actually say that multi-cloud for them is the reality they are living in today. So that plays through that complexity and delivers multi-cloud cross cloud analytics.

A - Dane Hanson

Okay, good, good. Thank you, Gerrit. Our next question comes in from Anon at CVS Health. He asked this question to Leigha actually. So Leigha, is there any map that reveals all the services? I think you might have shown this at the tail end of the demo, but maybe you could go back and do sort of an overview about the visualizations, the capabilities of Looker, how does Looker and BigQuery play a role with the visualizations for that map of Earth Engine.

A - Leigha Jarett

Awesome. Yes. Thanks, Dan. So basically, I think what this question is asking is if you can visualize the actual semantic model that you're creating in Looker to connect all your different data assets. And actually, earlier this year, Looker launched the LookML Diagram, which is available in Looker's marketplace. So you can directly, in Looker, create a visualization of your data models, whether your data is in BigQuery, Spanner or other places that are connected to Looker. So check it out.

A - Dane Hanson

That's awesome. Thank you, Leigha. The next question comes in around our Cloud SQL and Cloud Spanner capabilities. We offer both capabilities today, as you know, Gerrit, which one is for which purpose? Could you talk a little bit about how Spanner is our fully-managed database service? What is your recommendation, what use cases to use Cloud SQL as well as Cloud Spanner?

A - Gerrit Kazmaier

That is a great question because both of them are actually pretty awesome services. Cloud SQL is really a managed service that you can decide whether you want Postgres or MySQL. And it's really for those customers who want to leverage basically perfect compatibility with the Postgres or the MySQL ecosystem, use all of the packages, use everything which is around that type of system. And it's a really highly reliable, high performance managed service that you're providing.

Spanner sits on the other end of the spectrum, if you like. It's a cloud native database. It combines a unique set of abilities. It has five 9's of availability that is unheard of. It has global consistency. It's horizontally scaling, all of the things that you want to use when you're building massively scaling global applications. And so if you are looking on that spectrum, that's really about scale, and yet having strong consistency, then Spanner is the way to go.

And the good news is, from today's announcement, that you can use Spanner with a Postgres interface, which means that you don't need to relearn or take another tool

set chain in order to work with it. You can basically seamlessly apply your Postgres skills, and go cloud native with Google Cloud Spanner.

A - Dane Hanson

That's awesome. Let me ask another question. It's about our recent partnership with Tableau. This is pretty exciting partnership.

A - Gerrit Kazmaier

Yes.

A - Dane Hanson

We've done a lot with them. And could you talk a little bit about how this strategy and this partnership help our Looker customers specifically,

A - Gerrit Kazmaier

It is really about simplicity and openness. This announcement means that if you are a Tableau customer, you will be able to use Looker semantic models built and LookML for trusted data access, for data governance, for high performance database access. If you are a Looker customer, it means that you can add Tableau self-service data visualization right onto your Looker scenario.

So the bottom line is that it makes very working with data more simple. It helps our customers who are trying to find the right balance between self-service and flexibility, and strong governance and semantics. It truly brings together the best out of two worlds.

A - Dane Hanson

That's great. And I think it's really a reflection of our open strategy for the data cloud. Again, it brings more community, more customers, more use cases, more capabilities that we can bring as part of one ecosystem.

A - Gerrit Kazmaier

That's exactly right.

A - Dane Hanson

That's awesome. The next question comes in from Andrew. It's specific and another question to actually Nikita, about the live demo, we showed an integration of Vertex AI. How does this work with BigQuery ML or BigQuery Machine Learning? Nikita, could you take that question?

A - Nikita Namjoshi

Absolutely. That's a great question. So for those of you who don't know what BigQuery ML is, it basically allows you to build and train machine learning models with just a few lines of SQL. So in the demo, we showed how you can use Vertex AI

Workbench to have access to essentially the BigQuery console, but from a notebook interface, which I'm super excited about. So you could actually create and train your ML models and SQL, and do all of this from the notebook interface, but still have that connection to BigQuery and be able to use whatever tabular data you have stored in your BigQuery.

A - Dane Hanson

Okay, that's awesome. Thank you, Nikita. Next question comes in from Jeff, another question on Looker. Could you talk a little bit about how the Looker is enabling these new sets of API-driven experiences? Specifically, Jeff is asking, what are the considerations that we should have in place for the way we integrate it with other tools that we should be using? Could you talk a little bit about how we can now connect with Sheets? So there are some new things that we connect with Looker.

A - Gerrit Kazmaier

Hey, Jeff, awesome question. And I do want to re-text it with the following statement, Looker is going to be a key element of any data landscape. Basically, what Looker is doing is giving you two amazing things. One is it gives you a model semantic layer. Basically, you can describe your data landscape with very rich annotations. And this semantic layer is connected directly to the database system. For instance, when it runs on BigQuery, it completely delegates all of the queries right into BigQuery, so it delivers stellar performance.

And Looker, as a whole, has a really amazing API first concept, which means that it is so beyond AI. It allows you to build data rich applications. It allows you to basically renovate your customer experience, your websites, your internal applications and make them really data rich.

And last but not least, we kind of gave it away here, we are also integrating more and more products with Looker semantic model. For instance, we are adding connected sheets as a way how you can analyze and discover data described in LookML. So check it out. It's going to make a big difference in your landscape as well.

A - Dane Hanson

This is great. We are almost out of time, so we're just going to take one more question before wrapping things up. The last question is from Gerard. He talks about how, at USDA, many of the methods are using different visualizations, so whether it's Tableau or Esri. How does this complement our strategy with how we're connecting all this data? It's over 50 petabytes of data. How do we connect all that data with Earth Engine and enable all these different ways to process it with these different tools?

A - Gerrit Kazmaier

Absolutely. Hey, Gerard, great question. So first of all, it starts with making sure that there is data, and with Earth Engine you get this amazing data lake of satellite imagery and GIS data available to you.

The second piece is that you need to have a powerful processing framework. And by the integration to BigQuery, you can use the most scaling, the fastest warehousing system on this planet to analyze this data alongside with all of the rest of your data, of your business data.

And last but not least, like you said, it's about complete openness. The announcements that we have share today with LookML allows you -- that you can connect Tableau, connect to Sheets, Looker visualizations, all on top of that right tool, and make sure that you are using the visualizations tool that you like the most.

But before we close it off, because I think we are out of time, Dane and I have a very important message for all of you. And here it goes.

A - Dane Hanson

Right here. Thanks to Gerrit as well as our friends over on the demo set for answering some great questions and it's really been awesome hearing from all of you. Be sure to hop back over to the next website, Javier Soltero will share all the great things happening with Google Workspace. Thanks so much for joining us.

+++presentation

A - Javier Soltero {BIO 16235492 <GO>}

Hello, everyone. Welcome to Google Cloud Next. All right, we've had a lot of great content so far, not to say I learned a lot just now watching the Data Cloud session. I hope you're ready for even more. I'm Javier Soltero, vice president and general manager for Google Workspace, and I'm super excited to be with you today. Though, to be honest, I really was hoping we could all be in person by now.

Since flexibility is one of the key themes for today, we'll embrace what we have to work with, even if we can't be together. Although the last 18 months have been filled with uncertainty, we continue to be inspired by customers and users who found new ways to create and stay connected. Driving innovation and embracing change are always challenges for every business, whether you're 10 people or 100,000. The goal seems simple. Empower your teams to work effectively together, in part, by ensuring that your technology is an enabler, not a blocker.

As we've evolved Google Workspace, we've been focused on helping individuals, teams and entire organizations drive innovation and greater impact with the tools they use every day. And flexibility has been foundational to our approach. It's why we decided to not only be cloud first, but cloud only. It's why we've always prioritized user choice. It's why we take a zero-trust approach to security, and why we make sure any product innovation we introduce is truly built for everyone.

And those principles are core to why our customers choose us. Millions of companies, schools, government agencies and other organizations rely on Google Workspace to help them navigate whatever challenges they may face. They're also a big contributor to our own continued success as a business. Google has run on what

is now Google Workspace for the last 15-plus years, and it's part of why we have been able to continue to innovate and adapt as we scale.

In that time, we've grown to over 144,000 employees made 213 acquisitions, added dozens of offices around the world, and more than quadrupled the number of annual searches we support. We've weathered changing market conditions and user preferences, and competitive challenges just like any business, just like your business.

One constant for us has always been our tools, which were designed to meet ever shifting needs and circumstances. Today, we'll walk through some of the most impactful innovations in our toolset that help unlock the full potential of individuals, teams and organizations in a flexible, more effective hybrid workplace.

First, let's talk about collaboration. Effective team collaboration powers creativity and innovation. It's how people work towards shared goals, build team culture and are able to achieve substantially more than they would on their own. With everyone's time in such high demand and the explosion of collaboration tools giving us no shortage of ways to reach one another and work together, collaboration can often feel fragmented. Conversations and workflows scattered across disparate channels.

Now more than ever, the technology you choose should work intelligently and effectively across every medium to enable collaboration wherever it happens. Last month, we introduced Spaces, the central place for flexible team collaboration and Google Workspace. Spaces are built to be tightly integrated with Calendar, Drive, Docs, Sheets, Slides, Meet and Tasks to provide a uniquely better way for people to engage in topic-based discussions, share knowledge and ideas, connect across organizational boundaries and build team culture, all in the service of moving projects forward.

In the same way that a group of people can accomplish more by working together, our integrated experience is greater than the sum of its parts, helping people better collaborate and manage their time and attention. By thoughtfully bringing together collaboration surfaces and channels, the goal is to help people stop thinking about where and focus instead on the what.

To continue investing in this area, we've been working with customers to understand their needs, especially the changing circumstances we've all been facing. In line with feedback we've gotten, we'll be adding inline topic threading, more powerful search, robust security and admin tools for content moderation, and discoverable spaces. We hope this makes it even easier for organizations and teams to both proactively share and find the knowledge they need to deliver greater impact.

Those of us working remotely realized early on how crucial it is to cultivate a sense of human connection with our colleagues. No matter where or how we work, we all need to be seen, heard and understood. Towards that end, in the last 18 months,

we've invested here in bringing functionality to Google Meet that makes connecting virtually almost as natural and rewarding as connecting in person.

This includes AI-powered noise cancellation, low light mode, and live translated captions, along with a new intuitive user interface complete with polls, Q&A and breakout rooms that help make meetings more productive, inclusive and immersive. With all of these improvements, we're seeing customers who previously opted to use third party meeting solutions reconsider moving to Google Meet.

We've also invested in making our tools reflect the new ways people are working. To support hybrid and distributed teams, we've added the ability to set working hours, work location, and recurring out-of-office notifications from count. We also introduced the ability to RSVP to a meeting with a virtual or in-person location. All these investments are geared toward helping people better manage their time and ultimately protect their well-being. Well-being has been a central focus for us at Google over the past year, and for countless organizations supporting their employees during this long period of remote work.

Two clear bright spots we've seen in pivoting to remote work have been; one, an increased in empathy for our coworkers lives outside the office; and two, an increased focus in collaboration equity, or the ability for everyone to participate equally and fully. For more than a year, we've all been reduced to digital video tiles, and it's had a democratizing effect on meetings. We thought a lot about how we can sustain this equity as more of us move into a hybrid model.

Next month, we're launching Companion Mode, which offers a unified experience for people in the office and their remote colleagues. Those in the office can still use the best of in-room audio and video from Google-made hardware. But they can also join the meeting using Companion Mode on their laptop. This lets them fully participate in the meeting with access to chat, whiteboarding, Q&A and polls, along with the ability to share content just as they would from home. We think it's imperative to provide one unified meeting experience regardless of where and how people connect.

And as more people head back into shared physical spaces, we're enhancing our meetings hardware to give organizations greater choice and flexibility. We have two new all-in-one video conferencing devices, the Google Meet Series One Desk 27 and Board 65, with new standards of audio, video and whiteboarding capabilities built in. These devices can turn any room or shared space into a collaboration hub.

We also have new third party devices coming to the Google Meet ecosystem, including this Logitech Rally Bar and this new Rayz Rally Pro speaker dock that will automatically launch Google Meet for video meetings and provide an improved audio experience from a mobile device.

Lastly, we're partnering with Cisco to bring interoperability between our video conferencing devices. So you'll be able to launch a Google Meet meeting on WebEx

devices, and WebEx meetings on Google Meet hardware. This sort of partnership is crucial in delivering on our vision of Google Workspace for everyone.

Last year, our focus was on introducing an integrated experience across our first party products. This year, we're prioritizing strengthening the platform that supports and extends. This is so important, because our success is measured not only by how people use and love our products, but by the ecosystem that thrives around them.

And what we're seeing in the numbers here is remarkable. Google Workspace has more than 3 billion users, and a stunning 4.8 billion apps have been installed in Google Workspace today. There are more than 5,300 public apps available in the Google Workspace marketplace, plus thousands more private apps that customers have built for themselves. It really shows what's possible when you combine great ideas, easy to use APIs, and the ability to reach a user base that's 3 billion strong.

While users and developers have been able to build on apps like Gmail, Drive and Docs for years, we're now in the process of making it just as easy to integrate with Chat, Spaces and Meet. If Google Workspace is how it's done, then the Google Workspace platform is how it's integrated.

Miro has already announced their plans for integrating in Google Meet, and today we're pleased to announce a new integration for Chat and Spaces from Atlassian. Joining me now to share more, please welcome, Atlassian's Chief Product Officer Joff Redfern. Hey, Joff, great to have you with us.

Q - Joff Redfern {BIO 21998624 <GO>}

Thanks for having me. I'm delighted to be here.

A - Javier Soltero {BIO 16235492 <GO>}

For those that aren't familiar with Atlassian, can you tell us a little bit more about it?

Q - Joff Redfern {BIO 21998624 <GO>}

Absolutely. At Atlassian, our mission is to unleash the potential of every team. Our team collaboration and productivity software helps teams organize, discuss, and complete shared work. But at the same time, we believe there is no one tool to solve all of the complexity of teamwork and collaboration.

Every team is unique. Each team has its own Snowflake, and they should be able to use the best tools for the job. We focus on building the best-in-class collaboration solutions, and then deeply integrating it with all the other tools that teams need to get things done.

A - Javier Soltero {BIO 16235492 <GO>}

It's so true that the nature of every role in team within an organization and the challenges they face are unique. Can you tell us a little bit more about the

opportunity that Atlassian sees in building for Google Workspace and how you got started?

Q - Joff Redfern {BIO 21998624 <GO>}

Yes. Today, Atlassian solutions already extend and connect with thousands of tools from collaboration, chats, security, DevOps, and a whole lot more. And we're excited to continue to extend our partnership with Google Workspace to deliver for our joint customers. Work is everywhere. People's chat and inboxes, it's all flooded with work. And to help turn that clutter to progress, we believe in integrating Trello and Jira, and our other tools everywhere work is.

The Better Together integration helps Atlassian and Google customers to make workflow across their organization. Rich content and easy actions help move work forward. In fact, we are Workspace customers and this is what led us to dream up our initial integrations. One of our first launches together was the Trello integration in Gmail, and that was back in 2017. Today, more than 7 million people have installed that which is really impressive.

A - Javier Soltero {BIO 16235492 <GO>}

That's awesome. Today, we're so excited to announce the new Jira bot that connects to Google Chat to Spaces and enables users to create issues, monitor them, all within the space that you're already using for collaboration.

Q - Joff Redfern {BIO 21998624 <GO>}

Well, Workspace is unique, and that it offers such a significant opportunity to reach over 3 billion users. And today, Atlassian and Google have invested in a number of Workspace products to help users work better together, whether that's unfurling Google Five Links across Atlassian products, embedding an important Google Docs and Jira Work Management, or creating new Trello cards from Gmail. But there's more, and we'll continue to listen to our customers and then follow their needs.

A - Javier Soltero {BIO 16235492 <GO>}

It's great to see the power of Jira built into Chat and to Spaces. It's such a powerful example of how developers can build new experiences from across the platform, from Gmail to Chat to Spaces to Drive. Thanks, Joff. Really excited to have you here with us and I'm very excited to continue to develop our partnership.

Q - Joff Redfern {BIO 21998624 <GO>}

Thanks, Javier. Have a great show.

A - Javier Soltero {BIO 16235492 <GO>}

As we work with Atlassian and all our partners to build and deliver new experiences, rest assured that every one of them is designed with security in mind, starting with a zero-trust approach to identity in Google Workspace. We also employ a rigorous

vetting process to ensure partner apps are secure before becoming available in the Google Workspace marketplace.

Finally, we recognize that it's not always developers, but the person closest to the problem who best understands how to make work more efficient and impactful. To better empower these users, we're providing them access to custom no code AppSheet apps right from Gmail with dynamic email. This lets users interact with data directly and securely from their inbox to get things done in powerful new ways. This new experience is available today, and you'll see it in action in the upcoming demo in a few minutes.

Now, we've talked about the powerful new experiences in Google Workspace and the platform that surrounds it. But neither of those can transform the way your organization works without a broader foundation for security. We've seen too many headlines lately about data and security breaches, and it's a powerful reminder that modern collaboration requires modern security.

Legacy collaboration tools were built for a bygone era. And these headlines make it clear that a band aid approach to the security problem with legacy tools just doesn't cut it. We built Google Workspace with modern collaboration and security in mind to keep your people and your data safe.

Let's talk about what makes Google's approach unique. First, because we're cloud only, we don't have the same vulnerabilities that legacy collaboration tools and infrastructure have. With Google Workspace, there's no need for thick client applications, email attachments, or on-prem identity directives, each of which provide bad actors with too many opportunities for attack. And all our security protections are included with Google Workspace, which means you don't need to spend money on security add-ons, and you're less susceptible to supply chain attacks.

Second, our entire platform is built on the BeyondCorp security model, which is Google's unique approach to zero trust. This lets employees work securely from anywhere on any device without the need for a clunky VPN.

Finally, we're best in class at automatically detecting and preventing attacks, from phishing, to malware, to supply chain, to ransomware. Every day, we've about 15 billion spam messages, 100 million phishing attempts and 3 million deceitful URLs from reaching our customers. All of this comes together to provide Google Workspace customers with the most trusted way to connect, create and collaborate.

All right, now how are we working to enhance that security vision even further? Well, I'm excited to announce some new capabilities that build on this unique approach to security.

First, we've already made client-side encryption available in beta for Drive, Docs, Sheets and Slides, and now we're bringing it to Google Meet as well. Client-side

encryption gives our customers complete control over the privacy and confidentiality of their data.

Next, we're introducing data loss prevention for Chat. You can think of this as part of our promise to enable collaboration without compromise when it comes to security. With data loss prevention in Chat, you can support spontaneous conversation while preventing sensitive and confidential information from leaking outside of your organization. Admins can control what users share inside and outside their domain on Google Chat, and they were alerted about any violations.

Finally, I'm excited to share the Drive labels is now generally available. This gives organizations the ability to classify files stored in Drive based on their sensitivity level. Labels also integrate with Google Vault and Google Workspace data loss prevention to prevent external sharing, downloading and printing of sensitive files. Just another example of how Google Workspace enables collaboration, while providing the right controls to manage access and protect data.

So we've talked you through a lot today. And the common thread is that we're continuing to build a modern productivity solution, one that seamlessly brings together the right tools and the right way to help you more effectively collaborate, that supports hybrid and distributed work and that lets you extend and customize solutions for your organization, and of course, one that's secure by design. It's a platform that helps you unlock the full potential within your organization so that you can innovate, even thrive amid the disruptions of today and tomorrow.

There will always be certain things that are out of our control, but with the right people and tools in place, as we've seen firsthand with our customers, we can always be prepared to effectively adapt no matter what comes next. Though in this case, it just so happens that I actually know what's coming next and it's our demo with Erika Trautman, director of Product Management for Google Workspace. Stay tuned to see what we just talked about come to life.

A - Erika Trautman

Hello, everyone. I'm Erika Trautman, product director for Google Workspace. There has been a ton of innovation in Workspace this past year. And in the next 15 minutes, I get to share with you all the progress we've made, helping teams of all sizes to connect, create, and collaborate.

This demo has two parts. In the first, I'll be showing you Workspace in action through a little story that we've created. And then I'll hand it off to my colleague, Matt Izatt, who will show you all the ways developers can build on the workspace platform.

And as a reminder, before we get started, this is truly a live session, so you never know what's going to happen. If you haven't already, click the button that says Join the Interactive Experience on the next website, and then we'll see you in the live room where you can interact with chats, and do fun stuff like take polls, which we're going to try out right now. How many employees have you or your company

onboarded virtually this year? Let us know in the poll below, under 10, 11 to 25, 26 to 50, or more than 50.

I know that for me, recruiting and getting people in the door, that got harder during the start of the pandemic, taking that brand new person that you work so hard to find, bringing them up to speed, making them feel like they're part of the team and really enabling them to do great work those critical first few weeks on the job. And of course, it is so overwhelming to be that new hire. You're learning not just the role, but the tools, the processes, the people, and the culture maybe remotely. So I want to show you how workspace is making this easier.

Please meet our hero Pablo. He's in exactly this position. He's about to receive an offer letter from his dream employer Symbol manufacturing, which by the way, is not a real company in case you are wondering, so don't go look it up. His hiring manager Allison is going to help onboard him at the company. Allison is really, really excited to get Pablo onboard, and there are a ton of steps in the process that she's going to help him through.

So we'll show you how she uses Workspace to help streamline that experience for both of them even when it requires using third party software or custom tool the Symbol team built within Workspace. The point here, as Javier mentioned, is that workspace is a platform that brings together the right tools in the right way, at the right time, whether those tools are built by Google or someone else.

Okay, before we get back to Pablo's and Allison's story, let's see what you have been experiencing here in the poll. Wow, it looks like 48% of you say that you've onboarded more than 50 people this year. That is a lot. So I think you are going to be able to relate to Allison.

When you were recruiting and onboarding, what was the first thing that you did? I think probably you sent them an offer letter and fingers crossed, hope they signed it. Allison uses the DocuSign integration in Google Docs to do just that. So here you see, Pablo is going to check his personal Gmail on his mobile phone, and he just scrolled past it, there's an offer letter in there. He's going to click on that and open up DocuSign right there within the email.

He clicks this. It's a nice cover letter Allison has sent him, clicks to open the document itself. Okay, great, start date is right. They spelled his name right, salaries what they talked about. I think he's going to accept. He signs the offer letter with his finger right there on his phone without leaving Gmail. Come on, Pablo, sign, sign. And he signs and click Submit, and Allison, she's so relieved.

In other systems, Pablo might have had to stop what he was doing, open another tab to review and sign the agreement, go back to Gmail, hopefully remember where he left off. It's just unnecessarily disruptive if you're signing a single contract. But if you're someone who reviews and signs contracts all the time, it's incredibly onerous.

So deep integrations with leading third party apps like DocuSign save you valuable time and keep you focused on your core job.

Audience, if you have any favorite Google Workspace integrations, we would love it if you would share those in the comments, because it's a great way to help everyone who's out there, discover -- everyone who's there to discover the best of what's out there.

All right, back at Symbol, when Pablo returned his offer letter, that kicked off the onboarding process. So let's see what happens next. Pablo is now at home on his personal email and he sees an email from Allison come in at the top there. He opens it, notices, this is not a typical email. This is an AppSheet dynamic email, which allows him to interact with the form without ever leaving his inbox. So what he's doing here is selecting his laptop, accessory type, desk type, T shirt size, really important. He enters his address, click Submit, and just like that, Symbol can now send him his stuff. This is especially important because Pablo is going to work remotely initially.

Just like with the DocuSign example, the dynamic email lets him complete his tasks where he is in Gmail, saving him the time and hassle of toggling back and forth between tabs and apps, just to fill out a form. And by the way, if throughout any of this, you have questions regarding dynamic emails or AppSheet, please comment below so that we can address them in the Q&A.

Let's fast-forward to Pablo's first day on the job. He's received his equipment. He's excited to work. He's in calendar, notices. We've got a one-on-one with Allison coming up. He's going to click on that Calendar Invites and join the meeting with Allison. Allison welcomes him to Symbol, offers to give them a short overview of calendar and meet. So here she's showing him how to set up his working location and working hours, so that his colleagues who are global know when he's available and when he's off.

Features like these, only available in Google Workspace, really improve employee well-being and overall job satisfaction. They help employees better coordinate how and when to work together, ensuring both productivity and time to recharge even though our offices might be in our bedrooms or our kitchens. Honestly, Pablo is going to spend a lot of time in meetings. So Allison shows him all the great new features that have been added to Meet over the past year.

The interface is new and easier to use. Here, she's showing him how to get into some of the advanced features. He's definitely going to want to turn on noise cancellation, which is great for filtering out dogs barking or neighborhood construction. And if you're having trouble hearing someone, you can just click on the Closed Caption button to follow along in live captions, even in a different language than what's being spoken, which blows my mind. AI-powered translated captions in meetings are launching soon, and only Google Workspace offers this built-in for everyone.

There's also a host of new features which she's showing in here to boost engagement. So chat polls, these magical little breakout rooms that she's going to show that transport you to smaller groups where you can brainstorm, whiteboards, integrations with Google Docs.

At this point, the one-on-one wraps up and Allison suggests he goes into Gmail and start exploring the Spaces he's been added to. We've recently launched Spaces, which are the evolution of Rooms in Google Chat, and they're the central place for team collaboration in Google Workspace. Pablo looks at the team Space and noticed his team has written him a bunch of welcome messages, which is really great. He responds.

And now, he's going to browse the spaces that are available to him, and he discovers one particularly relevant to his work, quality inspector managers North America. Awesome, that's him. In this space, he can connect with his colleagues, discuss ideas and collaborate on projects easily. Spaces are unique and that they're tightly integrated with the entire Google Workspace product set. So Calendar, Drive, Docs, Sheets, and Slides, Meet and Tasks, bring all the tools you need to engage in topic-based discussions, share knowledge and ideas, move projects forward and build communities and team culture.

Pablo notices there's a little bubble with Allison's image, which means she said him a direct message, turns out this is public first project and Allison shared a document with him, which we can see in the preview here. Pablo opens the document and notices his coworkers already pre-populated some of the core information, so facilities, number of workers per facility on the floor and types of tasks that they perform.

Pablo's job is to optimize the process that managers use to create tickets and send them to their quality inspectors on the frontline. Okay, to do this, at his prior company, Pablo would have needed to secure IT assistance at a minimum, and more probably a contractor and probably a budget to go build an app. So not fast, not easy. Instead, Pablo is going to use AppSheet. He connects his sheets to AppSheet, and after about an hour of customization, he's created a quality inspection app that his team can use.

So he opens it up to file his first ticket to one of his quality inspectors. Now what? All right, over on the manufacturing floor, we meet Adu [ph], a quality inspector reporting to Pablo, and he's just received a pop-up notification on his phone with the inspection ticket Pablo assigned to him. So he pulls up the AppSheet app that Pablo created and performs the inspection. He's going to take a picture of the completed job.

Let's get -- let's see if he get -- we can get him over there into the AppSheet app. He noticed that he's got it, yes, there we go. All right, he's now in the app and you're going to take a picture of the job once it's completed. He's going to annotate that and submit it as closed, and that then will notify Pablo on Pablo's side of the app.

So hopefully, you saw how easy it was to make collaboration more efficient between an office and frontline worker. He used a really simple but powerful AppSheet app to eliminate the whole back and forth between emails and chats, and then maybe switching to an external ticketing system, and then more emails and more app -- more chatting.

At this point, if any of you can think of useful applications for AppSheet in your organization, please share those with us in the form below. So think about all of those repetitive tasks that make you crazy day to day, those are the kinds of things that AppSheets can automate for you.

All right, back to Pablo, let's see if we're okay, still on AppSheet here for just a quick second. We're going to get back to Pablo's day to day in his first week on the job any moment here. Let's see, I'm looking here, you guys have some really interesting -- scrolling through here, Asana, people like the Asana integration. I saw people use HelloSign. That stuff is all fantastic.

All right, can we -- are we back to Pablo? We're back to Pablo. Back to Pablo, it's the end of his first week on the job. He pulls up calendar in the sidebar while in Gmail, and he noticed that he should be joining the team meeting, so he clicks to join. On the call, Allison introduces Pablo to everyone and asked him to share his reflections on his first week. And he is really proud of the app that he built in AppSheet, especially since this is a tool the entire team can adapt.

He shows how easy it is to create requests, assign one to an inspector, follow the status. He also pulls up the request that he sent to Adu that was already completed. And if Pablo was joining from a conference room, because hopefully someday he will, he could use Companion Mode, a feature that's only available in Google Meet to seamlessly join and share from his laptop while using in-room audio and video. And with some congratulatory emojis from his colleagues, Allison closes off the meeting, and the weekend can begin.

I think it's fair to say that Pablo helped us with quite a lot of demos in his first week on the job. So thank you, Pablo. And I hope that you can see how at every turn, Google Workspace helps people connect and collaborate to get more done with an intuitive and integrated set of tools.

With that, I'd like to introduce my colleague, Matt Izatt, who's going to take us under the hood and talk about how you can build on the Workspace platform.

A - Matthew Izatt

Thanks, Erika. Hi, everyone. I'm Matthew Izatt and I lead product for the Google Workspace platform. Under the hood is a powerful engine. Let's talk about how you can take advantage and build on the Workspace platform. As Javier mentioned, more than 4.8 billion apps have installed in Workspace to date. This stunning number illustrates Workspace is more than a hub for work. It's a powerful enabler of workflows.

The opportunity to build on the Workspace platform is massive. Nearly half the world's population is already using Workspace. That's a huge audience, whether you want to grow an existing business app or build an entirely new business on the platform. To help you build experiences to reach these 3 billion users, we've delivered a range of tools so you can innovate, from no-code options like AppSheets, as Erika just covered, to powerful scripting with Apps Scripts, to a complete sets of easy-to-use APIs.

And we've been listening to your feedback. Developers want to use their own preferred language and tools when building integrations like Workspace add-ons or shout outs, or even using our large collection of REST APIs. So we've opened up the platform to support development with any tools, any language, on any public cloud.

Of course, if you're using Google Cloud, why wouldn't you take advantage of Cloud Run, Cloud Data Store, and Cloud AI to power your app? So there's a big opportunity to build on the Workspace platform with the tools and languages of your choice.

Now, let's take a look at how the process works across the three core stages of our development; the design, develop, and publish phases of your app.

Starting with the design phase, we've created the card builder tool. This tool allows you to lay out the visual design and user experience of your app. There are range of templates. And you can also drag and drop components of the app around like a no-code platform. But for more advance developers, you also have the ability to see the code in the editor, and make updates there as well.

As we move on to the develop phase, you now have a range of language and tooling to choose from, whether using options from Google like Apps Script or your own preferred language and tooling.

While Apps Script is a great option for developers, we have invested in and extended the Google Workspace platform to embrace a wider range of industry standard tools. So developers can use their own tech stack and use their existing code when building for Workspace.

When your integration is complete, congratulations, you're ready to publish it for public to use in the Workspace Marketplace, where it will be available for billions of users.

It's worth nothing that there are more than 5,300 publicly available apps in the Marketplace today. This number really highlights the diversity of use cases and remarkable opportunity for developers in building for Workspace.

And of course, if you're developing a custom app for using your own organization, you have the ability to publish that app privately, so it remains exclusively for the use

of your organization.

So there you have it, a quick tour of how you design, develop, and publish new integrations for Workspace.

Now, let's hear from you. What Workspace platform technologies are you curious to learn more about throughout the conference? Is it developer tools and languages like Apps Script or AppSheet? Or maybe it's product integration through add-ons or shout outs? Or perhaps data APIs or data access through Workspace APIs?

But that's enough about the technology platform. Why don't we take a look at a few real world examples of integrations developed for Workspace? And let's start with the Copper CRM add-on for Gmail.

(Inaudible) identified a problem. Workspace users needed a simple, but powerful CRM solution that is built to work with apps in Workspace. So naturally, they build a solution.

Here, you can see it in action. As a sales rep receives an email from a customer, the Copper add-on detects the email. After installation, the Copper add-on will detect the email and pull up the customer information automatically.

With the customer's information right next to their email, simply we click through the installation. We eventually get to CMB [ph]. There we are. As you can see, the Copper add-on has detected the email and pull up the information automatically of the user. And with the customer's information right next to their email, the sales rep has all the insight they need from Copper, and can craft the best response for the customer, all without leaving Gmail.

Copper is a perfect example of business that has grown alongside Workspace. And today, 100% -- yes, that's correct, all of their business comes from Workspace customers. These are customers who value the best in class CRM solution with deep, native integration to critical Workspace apps such as Gmail, Drive, and Calendar.

The opportunity to build for the Workspace platform spans multiple surface areas. So let's take a look at how this looks in giant [ph] spaces with the brand new Jira bot from Atlassian.

Here, you can see a customer service rep jumping into the customer success chat space to report an issue with the customer. After a short discussion in the space, the rep creates an issue in Jira via the Jira bot. Every time there's a status update on the case, the Jira bot will update the team members in the chat. This saves the entire team valuable time they might have spent going back and forth to Jira and checking updates. It also helps the team focus on collaborating together to help the customer instead of navigating their tools.

We'd love to hear what Workspace integration or apps you're using, or would like to see. Please share in the comments so the community hears what are some of the best.

These are just a few examples of how developers are innovating in Workspace and driving business value for themselves and their customers. We can't wait to see what you create and innovate on Workspace. Whether it's a no-code app, or a professionally developed solution. Either way, we provided a rich canvass for you to start with and believe the best is yet to come.

So looking at the chat, it looks like you're excited to get going and ready to get started. Visit developers.google.com/workspace to learn more about integrating with Workspace.

A - Erika Trautman

Thanks to my colleague, Matt, for taking us under the hood with Workspace today. And a special thanks to you, our audience, for your engagement. We love seeing your comments on chat. Now, stay tuned for our live Q&A, covering everything from our spotlight and this demo. Thank you so much. We'll see you soon.

+++qanda

A - Kady Dundas

Thanks so much Erika and Matt. It's absolutely awesome to see all the new experiences coming into Workspace.

Hi everyone. Welcome to the live Q&A. I'm Kady.

A - Javier Soltero {BIO 16235492 <GO>}

And I'm Javier. So excited to see all of you and engage with all of you today.

A - Kady Dundas

Absolutely. And before we start, just a reminder, this is an absolutely live Q&A. And that means you can engage with us directly. So please ask questions in the chat, tell us where you're from. We would love to hear from you.

And if you can't, just go back to the Next event website and click on the blue button that says join the interactive experience, and you'll be all set.

So to get this going, let's go ahead and start with a poll and see who we've got together today.

A - Javier Soltero {BIO 16235492 <GO>}

Let's do it.

A - Kady Dundas

All right. So we want to hear what's your role at work? Do you work in the IT Department? Are you a developer? Are you a person who uses Workspace just in the process of your daily work? Or something else entirely? Let us know in the chat.

All right, Javier, while we wait for those results, why don't you answer a question for us?

A - Javier Soltero {BIO 16235492 <GO>}

Let's do it.

A - Kady Dundas

Tell us, what are you most excited about in Workspace these days?

A - Javier Soltero {BIO 16235492 <GO>}

Well, I'm excited about the pace at which we're delivering some amazing new capabilities for people. But I'm also excited about the way we're bringing the Workspace products closer together and helping people be that much more effective at getting the work done, collaborating with their colleagues, building documents. Basically coming -- translating ideas and turning them into reality by using our products. It's very exciting. And we can't wait for all the stuff that we're going to come out with this year and next.

A - Kady Dundas

Absolutely. And I feel like as I've seen the chats coming in, customers are talking about examples of how they're using Workspace, how they're going to use some of the new AppSheet innovation in Gmail. So it's really exciting.

Okay, our poll results have come back in. And it looks like -- do you want to read the results?

A - Javier Soltero {BIO 16235492 <GO>}

Yes. Well, it looks like we have pretty even split between our IT folks and developers, which is great, and consistent with like one of the key -- there's a lot of great content for all of you at Next. And then we also have a healthy portion of end users and other folks. So, widening the audience, trying to make this highly relevant topic for a lot of people, not just technology professionals, people use this every day, so I'm excited to see this many people.

A - Kady Dundas

Absolutely. All right, let's jump in with our first question.

A - Javier Soltero {BIO 16235492 <GO>}

Let's do it.

A - Kady Dundas

It comes from Lucy [ph], who says, I saw the news about the new Work Safer program. Can you tell us a bit more about that?

A - Javier Soltero {BIO 16235492 <GO>}

Sure. Thank you for the question, Lucy [ph]. So we're announcing Work Safer as a way to bring the best of Google Workspace and of Google Cloud Security together to help companies rise to the growing threat of cybersecurity incidents, et cetera. And so it brings together Google Workspace with some exciting innovating from our Security team. And for those customers that have broader, more diverse environments, we partnered with two of the best names in the security business; Palo Alto Networks, and CrowdStrike, to create a complete solution for these companies to be able to remain secure in a much more challenging environment.

A - Kady Dundas

That's great. That's great to hear a kind of an all in one solution.

A - Javier Soltero {BIO 16235492 <GO>}

Yes.

A - Kady Dundas

All right. Let's move on to question number two. And this one is going to be for Erika. And it comes from Michael Etsefron [ph], who asks, is it hard to collaborate if members are using different platforms to join? For example, he's running off of Google's toolset, but has a partner who's using a different platform?

A - Erika Trautman

Yes, this is a really important question, Michael [ph]. Thank you for that. I think the reality is that we live in a world where there's different sets of products that you or your partners, or your customers are going to be using. And it's fundamental to our way of viewing the world that Workspace should not be a walled garden. It should integrate. It should connect and make those tasks easier for you.

So on the Drive doc sheet slides side, we invest really deeply in making interoperability with Microsoft in particular, totally seamless and very easy to use. So for example, you can open up Microsoft documents in the Google Editor and have the full interactive experience. Those changes will be saved back to your Microsoft document including comments. All of those changes are updated in real time.

But there's also a really important third party compatibility component, which I would love for my colleague, Matt, to discuss.

A - Matthew Izatt

Yes, it's fundamental to us that whether using tools which interoperates with the Workspace Suite, or things will complement the types of functionality that we offer, that these all work together.

I think one example that we recently announced, our new partnership with Miro, which is a company that does virtual whiteboarding or collaborative canvassing. And you can imagine that as you're working with that toolset, not only are you building things on your virtual canvass, but you're scheduling meetings, you're holding meetings, with which you want to collaborate in real time while changing things within that tool.

And so what we are doing is making it really easy for you to schedule a meeting in Calendar, join a meeting in Meet, and at the same time be working in your Miro whiteboard. So yes, we believe very strongly that all these things should work better together; other Workspace and partners that are really great experience for our customers and users.

A - Kady Dundas

That's great. Thank you. All right, our next question comes from Ben Bing [ph], who's with Chandra Ausry [ph] and asks, must we have or use Gmail or company email for using the rest of Google Cloud and Workspace?

And I think Erika, this is probably one for you.

A - Erika Trautman

Sure. Yes, happy to take that.

We have tailored offerings that don't require you to migrate emails. So Workspace Essentials is perfect for that. It includes the Workspace product set but without email, so it integrates easily. And we also have deep interoperability with Outlook and Calendar.

A - Kady Dundas

Got it. Great. Javier, we're going to move to you next.

A - Javier Soltero {BIO 16235492 <GO>}

Okay.

A - Kady Dundas

And the question comes from Hannah [ph]. And Hannah [ph] says that her team loves new features, like being able to jump right into a meet from a doc, and is wondering, will integrations like that be extended to other apps inside Workspace?

A - Javier Soltero {BIO 16235492 <GO>}

Yes. In fact, we're very excited to continue to advance the opportunity of bringing -- to start actually from the real time collaborative experience that Google Docs pioneered, now actually 15 years ago. I think yesterday was our 15th birthday. One more and we can drive.

And be able to allow users to go from working in real time with others in the document to easily getting into a live video feed where you can hear and see each other. And sort of that progression I guess is really important part of ensuring seamless collaboration, and it applies, we see to both our own editors, as well as Matt mentioned, third parties over time.

A - Kady Dundas

Yes, got it.

A - Javier Soltero {BIO 16235492 <GO>}

Yes.

A - Kady Dundas

Makes sense. But we're going to stay with you, Javier with this next question, which comes from Carter [ph], who says, my company uses a lot of point solutions like Zoom and Slack, in addition to having Microsoft and Google licenses. So what would you say is the argument for consolidating?

A - Javier Soltero {BIO 16235492 <GO>}

Well look, one of the strongest aspects of Google Workspace is the element of choice, the choice that users make billions of users have made to select individual products for key roles in their lives, at work, et cetera. And so we're guided as we refine these products, by that sense of affinity that people have to the approach that we bring.

That approach is best expressed and nurtured I think through deeper and better integration between our products to create something that's ultimately net new, and at the same time, we recognize that there are other companies around us and this vibrant ecosystem of ours that offer different points of view, and different aspects of what we also provide. And we believe that there's ample opportunity for users to make an informed choice and really recognize -- it comes down to familiarity with the product, the sense of security that you get from an integrated solution, and ultimately the cost.

So it's a choice everyone makes, and over time, we feel really good about the continued growth of our ecosystem.

A - Kady Dundas

That's great. That's great. Thank you.

Erika, we're coming back to you with a question from Myles [ph], who asks, how do you plan to win over diehard fans of Excel and other Microsoft creation tools?

A - Erika Trautman

All right, a good challenging questions from Myles [ph].

Well, as Javier said, we introduced Docs and Sheets about 15 years ago. And that fundamentally re-thought what a file should be. Our belief is that these experiences need to leverage the best that the internet has to offer; so, interactivity, connectivity, and data. And they shouldn't just be a physical -- a digital representation of a physical piece of paper that lives on your hard drive. And that's in stark contrast to the mental model that legacy solutions have evolved from.

Over the years, we've invested a ton in user experience and making this incredibly easy to adopt. And the great thing is that all of this ease of use which billions of people take advantage of is [ph] has Google Security in meshed and underpinning the whole experience.

I would call a couple of features that I hope people are aware of. But if they're not, they should be. So connected sheets for example, if you weren't aware, allows Sheet users to analyze billions of rows of data. Yes, billions, in a single sheet. So that really pushes the envelope for what a productivity tool can do.

And our innovation around smart canvass, which really supercharges interactivity, intelligence, and connection to rich data in the form of these modular building blocks that transcend the file boundaries. So we bring in smart chips that bring rich information about people, events, files, templates, we have tables, and task list. All of that really further enhances what these files should be.

So what I would say is for any of the Microsoft, diehard Microsoft fans, we would love to give you a tour, and I bet we could change your mind.

A - Kady Dundas

Got it. Great, thanks, Erika.

All right Javier, we're coming to you next with a question from Juliet [ph], who comments that there have been a lot of security breaches lately in the news. And what are we doing from a Workspace perspective to protect customers from these sorts of attacks?

A - Javier Soltero {BIO 16235492 <GO>}

Well, it's a great question. And thank you for the question.

A lot of these attacks originate from the architecture and habits that went along with legacy products, right; the sharing models, the approach for storing content, the reliance on heavy, powerful clients that store a lot of information locally on them but don't necessarily provide the best degree of security.

Google Workspace was born on a different era and has -- it had since the very beginning a different point of view about the design and the approach to security. And it comes, I guess, as part of us being cloud only, right? Like, we grew up and we're architected for the distributed world in which we live in now. And it is the reason behind why our products are so effective.

So we've continued to invest around that to make it even clearer how along with enhancements and innovative capabilities from Google Cloud security, like the encore, et cetera, we establish a completely different model for securing content while ensuring the absolute best and most effective level of collaboration within a company, and beyond a company; so externally with other third parties, et cetera, and partners.

A - Kady Dundas

Absolutely. So it's really architected to be safe in this world.

A - Javier Soltero {BIO 16235492 <GO>}

Yes, yes. And actually, look, we mentioned this idea of habits, right? Like, these -- the notion of attachments, right, the model that people grew up with when productivity tools, digital productivity tools were first introduced. Is the main vector through which a lot of these ransomware and other terrible things tend to start, right? Somebody, either opens an email, like a phishing attempt, or a malicious attachment, something that gets spread through various different tools that people are used to using.

And companies are really desperate, say, how do we actually put a stop to this? And by the way, can we do that in a way that actually works us towards a sense of transformation in our company? So it's not just about securing your communication and collaboration, but ultimately taking that full opportunity to make it more effective at the same time. So it's pretty exciting.

A - Kady Dundas

That is exciting.

And you have been working in this space for so long. You mentioned the legacy tools. And from Acompli, to work at different companies, you've been so focused on the productivity market. What have you learned across those different experiences and different products that is most important and the knowledge that you use today?

A - Javier Soltero {BIO 16235492 <GO>}

Well, listen, I think the most honest answer to that question, and it may surprise some of you, is you can't please everybody, right? You're building products that play these very crucial roles in people's personal lives, and at school, and at work. And part of their power is that they are horizontal in nature. They allow people their canvasses for creation, articulation of ideas, et cetera.

And so you have to be very careful and deliberate about the process you use to evolve those products. And so as I mentioned earlier, we began our journey as Google in the collaboration space in a very particular point in time where it allowed us to have a different point of view, a more modern approach, and an eye towards simplicity that didn't undermine the sophistication and power of the products that we were doing. That's what we are really strongest at.

And so as a result, the task of evolving those opinions in products like Docs or Sheets, or Gmail, or Meet, any one of these products, they are the representation of a point of view that Google is bringing, that customers are actually informing and helping us refine over time. But it ultimately requires that we really understand what it is that we believe the right result is for our customers. And that may mean in some cases that these products are uniquely powerful for key scenarios, and are not necessarily just like something that can be used for -- they're not multi-tools, right? So it's a really exciting and challenging journey for us.

A - Kady Dundas

Absolutely. And having that strong point of view, it's a great opportunity to get feedback from all the customers who are listening now. Please share your feedback in the chat. We want to hear from you.

All right, we have another question. It's coming in from John [ph], and it's going to be for Matt. And John [ph] asks, what are you doing to encourage developers and ISVs to build for Workspace?

A - Matthew Izatt

Yes, thanks for asking the question. I know we talked a lot about customers and users. But at the heart of the successful platform is developers. And so what makes the developer want to build on the platform?

Let's start with our open philosophy. Google as a company for a long time has believed in the openness of data, the openness of access to platform, and that extends to Workspace. We built an extensive set of APIs and frameworks, and they're completely open. You can go build something today right now.

Secondly is reach. If you are building something on a platform, you want an audience, right? You want to build a business on a platform, you want to have success, your customers have success. And we have -- or Workspace certainly has a lot of reach. We're talking about 3 billion users and millions of paying businesses and paying customers. This is fundamental for why you want to be on the Workspace platform.

Finally, I mentioned APIs and frameworks. We've put a lot of effort into -- we did put a lot of effort into making sure they are easy to use and easy to build on. I say easy from a developer point of view. It shouldn't take you months and months of trying to deduce how something works from coding [ph] and documentation, rather it should be something that you could build up a prototype in an afternoon. And we believe we have made it that way for you.

And finally, you've seen a lot of logos on our slides today, at our discussion point today. These are really proof points; Atlassian, Miro, DocuSign -- of the success our partners are having, and in fact that we believe in being better together.

A - Kady Dundas

Absolutely. Thanks, Matt.

Okay, Javier, we're coming back to you with a question from Laura [ph].

A - Javier Soltero {BIO 16235492 <GO>}

Hello Laura [ph].

A - Kady Dundas

Yes. Laura [ph] is asking with COVID still keeping a lot of companies remote, what is Google and Google Workspace team doing to offset the difficulties of distributed work?

A - Javier Soltero {BIO 16235492 <GO>}

A lot, is the honest, simplest answer. Now look, I think there is a -- it's a two-part answer. From one side, as an organization, we have to listen to people. We have to get feedback from employees. We've learned a lot from each other and about the different situations that our employees have to face on a daily basis.

It's informed our point of view, as I mentioned earlier this idea of having an opinion. We know that just because work doesn't take place in a specific named location any more, that there aren't like a whole host of new problems and opportunities that you have to address. Not just with products by the way, but also with policies that a company adopts, like recovery days, and home office type end, et cetera.

Now from a product perspective, we have this incredible opportunity to channel those learnings, along with the input that we get from our customers from around the world, and even our users to say how are we helping and how can we be more helpful, I guess, in such a broad uniform sense of the word, by helping people not just use these products, but be successful with them.

And again, this involves a whole lot of listening, which is why I'm great to have -- it's the dynamic experience here with Cloud Next, and also all these great conversations with users and customers that we've been having every -- so, it's a never-ending task.

A - Kady Dundas

Absolutely. Across two parts; the work and the product.

A - Javier Soltero {BIO 16235492 <GO>}

That's right.

A - Kady Dundas

Yes. All right, well, it looks like we are out of time. So, I'd like to thank everyone for joining us today and a huge thank you to Javier, Erika, and Matt.

A - Javier Soltero {BIO 16235492 <GO>}

And thank you, Kady.

A - Kady Dundas

Of course. It's great to be here altogether. Thank you everyone online for joining in today.

And I'd like to remind you that even though we finished the live Q&A, the day is not over yet. And there is actually another great session that is about to begin shortly. And it's from our own Chief Diversity Officer, Melonie Parker, who is going to be leading a DEI spotlight session that talks about the importance of STEM in creating pathways to jobs in tech. It's a really important topic, and I hope you all tune in to check it out. The details are on the Next website.

Thanks so much for joining us. Bye.

A - Javier Soltero {BIO 16235492 <GO>}

Thanks everybody.

+++presentation

A - Melonie Parker {BIO 21008144 <GO>}

Hello everyone. My name is Melonie Parker and I am Google's Chief Diversity Officer. I'd also like to introduce Malaney [ph] who's with us today. She's going to be providing ASL interpretation.

Is it great to be back for my third Google Cloud Next. This time, we're going to look at nurturing and developing pathways to careers in tech. Today, I'd like to talk about how building a more diverse inclusive culture is not just a competitive advantage for us at Google, but it's a responsibility as well.

And as we get started, I want to let you know that the chat is open so you can engage with each other during this session. I want you to share your thoughts, share

where you're tuning in from, and we'll have a few of our folks on hand to join the conversation.

We'll also get into what we're doing to widen pathways to tech careers at Google and across our industry. But first, I am so proud to say that Google is committed to making diversity, equity, and inclusion a part of everything we do, from how we build our products, to how we build our workforce.

I work hand in hand with our CEO, Sundar Pichai, and as part of our executive leadership team, to bring our global DEI strategy to life.

I also lead a passionate group of people whose work touches over 140,000 employees, stretches across nearly 60 countries, and helps millions of users who use our products and our platforms to run their households, their businesses, and their lives.

And personally, I travel down a very unlikely path to land this position. I'm a black woman who grew up in a small town in North Carolina. My brother and I are proud alumni of HBCUs. And we were the first generation in our family to bring home a college degree, which I earned at Historically Black University, Hampton University.

And unlike many of my peers, I didn't have anyone at home to explain the unwritten rules of corporate America or to help me navigate my career. Instead, I cobbled together a community of mentors, managers, and inspirational voices who helped me find my path.

And that's an idea that I want to focus on today. Access, opportunity, and networking are critically important building blocks for a successful tech career. And that's especially true for folks like me who come from non-traditional backgrounds.

Too many people from underrepresented communities find themselves confronting systemic inequalities, such as a lack of access to STEM education, or access to high speed internet that disrupt the pathway to tech careers. And for many who do navigate the pathway, we've seen how the wake of inequality can foster a sense of imposter syndrome once on the inside. It's that sinking feeling of doubt in our abilities and a feeling like a fraud, or that we don't belong, and that for some, it will linger for an entire career.

Overcoming inequality and creating access to opportunity, including for our underrepresented talent, this is a top priority at Google. And we're taking decisive actions that create opportunities and steadily grow a workforce that reflects the world around us, to launch programs that support our communities globally, and to build products that better serve all of our users.

In other words, to build for everyone. We need to weave diverse perspectives in to every step of our design, engineering, and testing processes.

And innovative ideas can come from everyone; from Googlers at the grassroots level, to engaged leaders, and to established diversity councils across the company.

As an example, the Google Meet team worked on a light enhancement feature to better represent all skin tones in an inclusive way during our video calls. And through feedback from a diverse group of testers, the team was able to determine the right algorithm that better work for all individuals across the skin tone spectrum. And this ensured that all video calls on Meet work well for everyone. And it was thanks to the collaborative work and questioning how do make products equitable for all.

And another example, Google has internal teams to foster equity through technology, empowering our black plus community to innovate in the digital space by supporting their educational journey, and helping them land roles in the tech industry.

And we've also built external programs like Cloud Career Jumpstart. It's a 12-week learning course for underrepresented students with Computer Science, or Information Systems related majors, or the relevant experience that offers free access to Google Cloud Associate Cloud Engineer Training to prepare for the certification exam.

We just published our diversity annual report. And I am excited to share that 2020 was our best year yet for hiring our black plus and Latinx plus Googlers in the U.S. It was also our best year ever for hiring women in tech in the U.S. and globally.

In addition to hiring, we're also redoubling the focus on retaining Googlers from all underrepresented groups. And then full transparency, this is an area where we can and we must do better. Google depends on the best, brightest, and most diverse talent to not only help us solve today's challenges, but also to co-create solutions to tomorrow's problems. So we are building a lasting model of inclusion and belonging that helps all employees feel seen, connected, supported, and I hope proud to be in service.

Belonging is key to re-recruiting our workforce and acknowledging that not everyone experiences our culture the same way. Despite our best efforts, some team members are still feeling left out. There is work to do around building the culture that we've all been working so hard to co-create. Clearly, there's some other missing element. And as different as we are, we all have the same underlying need to feel value, to feel like our contributions matter, to feel like we belong here.

But being included isn't necessarily feeling like you belong. Being invited to the table is not the same as being welcome at the table and being valued like you belong.

Personally, I've been inspired by the work of John Powell. John is an expert in the areas of civil rights and civil liberties. And he's a professor at Berkeley and he leads

the Institute of Othering and Belonging. And he looks at our primal need as team is to belong, and what fosters belonging and what prevents it.

And if you think about it, one of our primal fears is to be ostracized by a group. Aside from food and shelter, we need to belong. And we've evolved to ensure that we could maintain access to the resources that the group has. Many behaviors are dictated by this need to be accepted by others.

But we're also guided by the fear of losing that very acceptance. And we've evolved to protect ourselves and our loved ones by determining who's in and who's out. And that comes down to identifying who's the least risk, those that we perceive most like us and relegating those who aren't to the out crowd.

And John calls that primal sorting of people into ins and outs; the cool kids versus the non-cool kids, as othering. And we don't necessarily do this consciously. But it is the behavior that stems from our unconscious bias, the subtle ways that we send messages, even virtually, of who's cool, and who's not, who's valued, who's not. And that's why I believe that our work, it's not truly possible until we foster this sense of belonging.

And as evolved humans, we have control over this. There are ways to check in with ourselves, noticing are we turning inward, focusing on only who and what we know, versus turning outward to connect with and explicitly work with other groups, and to seek ways to build common ground. And that would foster belonging and empathy.

And this means that we need to co-create the workplace experience with our internal communities, and redefine what it means to be a Googler, by acknowledging where we can do better, and by ensuring everyone feels like they belong, is positioned to do their best work, and can confidently bring their authentic whole selves to work each day. And for underrepresented talent, this can make the difference between surviving and thriving in their career.

And for those of us who are accustomed to muting parts of who we are, authenticity empowers us to do our very best work.

Last summer, at the start of the global racial justice movement, I realized that I could no longer cope switch, or check parts of myself at the door in an act of self-preservation to lead our deep work in racial equity, and address the systemic and structural barriers. I needed to reconcile the most vulnerable parts of my own identity as a black woman with the black woman who happens to lead diversity at Google.

And I know that this is the type of workplace environment that we strive to build. And with our collective, consistent efforts, that is what we'll do. We know that Google is most helpful when our products and our services reflect the needs of the people who are using them.

To best serve our diverse global community of users, we need a more representative workforce. And while we're making progress, we know inequalities persist around access, opportunity, and networking for underrepresented talent. But through investments in creating pathways to STEM and with help from allies, we can broaden the talent pipeline, improve product design, and fulfill our mission of making DEI part of everything that we do.

What's this look like? There's a real cognitive shift happening both inside and outside of Google around diversity, equity, and inclusion, and how we can best build for everyone. Externally, we're creating pathways to careers in tech as early as elementary and high school. We're expanding recruitment beyond the usual campuses like Stanford, Berkeley, Harvard, Yale, and doubling down on higher education institutions like Hispanic serving institutions, and Historically Black colleges and universities, serving underrepresented talent.

Why? Because we know that 25% of black graduates with STEM degrees for example, they come from HBCUs, just like the one I attended. So this year, we began deepening and sustaining at relationships with HBCUs.

In June, we announced a historic, unrestricted \$50 million grant that allows the presidents of these esteemed institutions to allocate resources in a manner that they see fit.

We're also broadening career pathways to include a major growth with Google career readiness investment that supports our Hispanic-serving institutions around the U.S., a significant economic opportunity grant for workforce development, and digital skills training to thousands of Hispanics, and a career readiness program for Native American indigenous serving institutions. And that's just the slice of the work that we're doing externally.

And while I mentioned that 2020 was Google's biggest years in terms of hiring black and Latinx talent in the U.S., we know that there's much more work to do inside of Google to retain and grow our talent. So broadly speaking, we've developed racial equity education for all Googlers and incorporated it into our new hire orientation.

We've doubled the size of our retention and progression team. Now, we're on a path to triple this team by 2022. And this enables us to provide one to one support like coaching, networking, and internal mobility opportunities to help underrepresented Googlers grow and thrive. And we've rolled out an innovative onboarding program for our new black Googlers so that they feel more supported right from the start.

Our employees want to know that they can grow and thrive with us, and that's one reason why we're working to increase leadership representation among women, black, and Latinx Googlers.

We've introduced pathways to sponsorship, for women in technical leadership roles. It's designed to accelerate their careers. We leverage partnerships with more than

two dozen community and professional organizations. And these partners offer professional development, as well as networking opportunities for underrepresented Googlers.

We also offer skills building initiatives like the Cloud Technical Residency program. And with great intention, we've begun building a culture of belonging for all Googlers as I've described earlier.

We've been very open about our successes and our challenges. And I invite you to explore this further at diversity.google.com.

Now, I know many of you are wondering what can I do? So as you weigh your own strategies around engagement and retention, consider the role of allies in driving results. Allies can be leaders, managers, and peers. They support folks in marginalized groups to which we don't identify.

Internally, we've created a number of pathways for allies that are seeking to support our underrepresented colleagues. These include an Allyship Pathway, with group exercises for allies and resources for practicing or encouraging inclusive behaviors.

We also have Google in Residence. Experience Google's software engineers teach introductory computer science classes on HBCU campuses.

And we have Faculty in Residence. We have more than 50 faculty members from 30 HBCUs to design project-based industry-informed content, and to implement that content in their classrooms.

Google has doubled in size in the past few years. We know our DEI commitments need to keep pace. Operating at this global scale, it heightens our sense of responsibility around DEI. And to paraphrase my colleague, Amy Jean-Baptiste, there's no blueprint to doing this work perfectly.

And while we don't have all the answers, we're eager to share what we've learned and also to learn from others. And in the spirit of learning leadership, I hope I'll be invited to share more discoveries and progress at Google Cloud Next '22.

In closing, when our mission is to build for everyone, we have to work with everyone. So with help from allies and through smart investments and creating pathways to STEM careers, I am confident our talent pipeline will flourish. Real, meaningful change can take years, we know. But there's no need to wait for change to come.

If you haven't already, please head over the chat room and join the discussion. There, you can share some of your successes and your challenges around creating pathways to tech careers. This kind of dialogue can open minds and truly inspire change.

I look forward to share more progress with you next years. And I'll bring others along who have been on this journey with us to share their experiences.

Thank you for wrapping up day one of Google Cloud Next with me. It's been great sharing this time with you. We look forward to seeing you all here tomorrow for day two, which kicks off with our developer keynote. Until then, be sure to register at g.co/cloudnext for access for all of our content and join the conversation on social using hashtag #googlecloudnext.

See you tomorrow.

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