re: Invent 2019 Keynote - Andy Jassey

65,000 attendees

Theme - innovators who have re invented customer experience on the Aws tech platform

Transform/re:Invent customer experience

1. Don't Wait

Transformation is about leadership
- Senior team alignment (and conviction)
- Top down aggressive goal
- Train your builders
- Don't let paralysis stop you before you start

2. Don't stop me now..
"check box heros"
IT Spend ~ 3% cloud   97% on prem
Aws 47.8% of cloud market

Compute - Instances, containers, network

* Multi-cast launching today
Instance innovation: Aws Nitro system - offload hypervisor functions from server to Nitro chip

Nitro also moves off control demon to chips
→ Re invented virtualization layer

ARM based instances - Graviton chip from Anapurna Labs

* M6g, R6g, C6g   New instance type based on ARM graviton (v2 chip)
40% price/perf over x86   Graviton 2

Machine Learning - Inferences/Predictions majority of the cost (80%-90%) vs training

* Launch Inf 1 instances for Ec2 backed by new Inferatia chips
                            ECS
Initial support Ec2, Eks, Sagemaker

Tensor flow
Pytorch
MxNet

* Amazon Fargate for Amazon EKS
        40% of new container customers to Aws choose Fargate

* Nitro Enclaves
            2020 Transaction Banking – Digital Platform
            Building for Developers
About 40 minutes   – Goldman Sachs marquee
into the keynote   – published some APIs
    3. Is that All You Get For Your Money?
            on prem vs cloud
                Mainframe decom – redo as micro services
                        – move on a per workload basis
            Oracle
            Windows
            🔲 Sdc Server

    4. The Hunger Keeps on Growing   Data
            Data Silos to Data Lakes
                S3 – most popular for data lakes
    * IAM Access Analyzer

    * Amazon S3 Access Points
            – Customized access permission rules for each of
            your applications
            – Simplifies managing data access at scale for applications
            to access data sets

        Amazon Redshift – Concurrency scaling
            * Federated query – redshift, S3, relational db
            * Data Lake Export
            * Materialized Views
                Many features released this year

        * Redshift RA3 Instances with Managed Storage
            Scale compute and Storage Separately
            Hard to cost effectively scale without compromising compute

Compute not keeping up with increases in storage performance

* AQUA (advanced query accelerator) for Amazon Redshift
→ Moves the compute to the storage

- Custom hardware to accelerate compression, encryption
- Do the compute on the raw storage
Great companies - keep listening to their customers and innovating on their behalf

* UltraWarm
- warm storage layer for elastic search
- better durability, backed by S3

* Amazon Managed Apache Cassandra Service   Right Tool for the right job to save money, but best experience for your customers

S. I have worked 900 miles... Machine Learning
- Early days : working with clunky tools
- 8o% of TensorFlow in the cloud runs on AWS
- Big AWS investment in scaling TF across hundreds of GPUs, etc
"Right tool for the right job"
PyTorch and MxNet results too

AWS Services
ML Services   - SageMaker
Frameworks   - Experts

* SageMaker Studio — web Based IDE for everything needed for a ML project
one click notebooks with elastic compute

* Amazon SageMaker Experiment
* SageMaker Debugger
Concept drift - changes where model perform declines

* SageMaker Model Monitor

* SageMaker AutoPilot
Auto ML with transparency (visibility/control

* Amazon Fraud Detector

* Amazon CodeGuru — ML service to review your
                    code
                  — add CodeGuru to your pull request
                    reviewers

   ML State Analysis, ML profiling

✳ Contact Lens for Amazon Connect
   → transcription, sentiment analysis, long periods of
     silence, etc.
      - search over transcripts
      - dashboards
      - mid 2020 - real time dashboards

✳ Amazon Kendra — enterprise search with ML and NLP

5. Break on Through to the other side — Help customers deal with
                                         how to move some on prem
                                         workloads : "these need to
                                         stay on prem"

   ✳ AWS Outposts GA
      Ec2 EBS Ecs EKS   Two flavors — Aws on prem
      EMR VPC RDS S3   — VMware
                                           control plane

✳ AWS Local Zones   Ec2   FSx   ELB
                     EBS   VPC   RDS

                  workloads in certain geographies that need single digit
                                                                 latencies

 · How should customers think about 5G and how to leverage it?
      - Network latency going to lower   low latency, massive
      - More processing at the edge   throughput

✳ AWS Wavelength   Build apps with single digit latency...

         Verre — city agg site
              (Aws)

         - DynamoDB
         - we can do it better   Once in a life time
                                          chance to re Invent