PASS SUMMIT2019

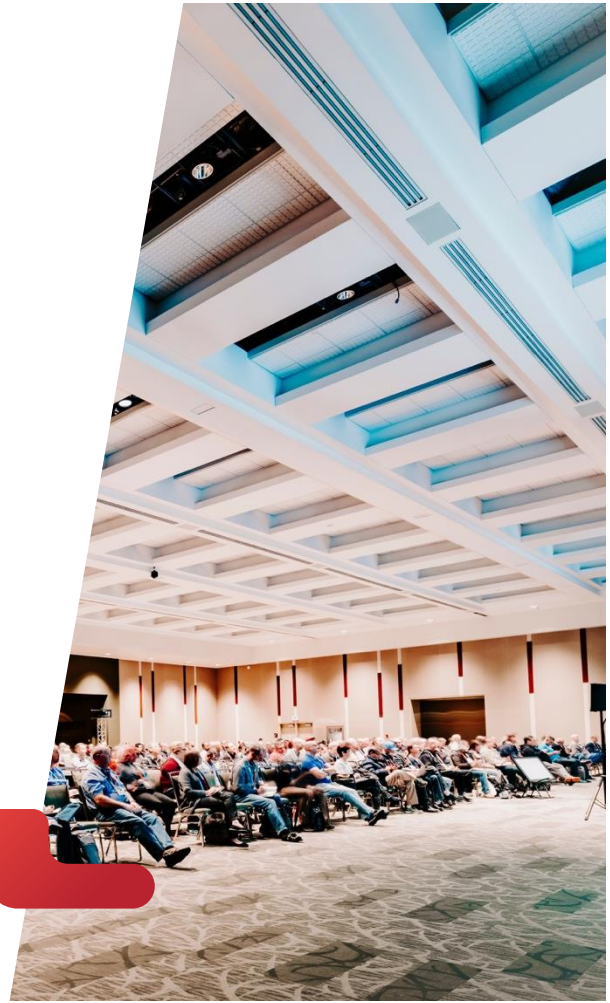
SUSE Linux for Modern Data and Analytics

Bryan Gartner

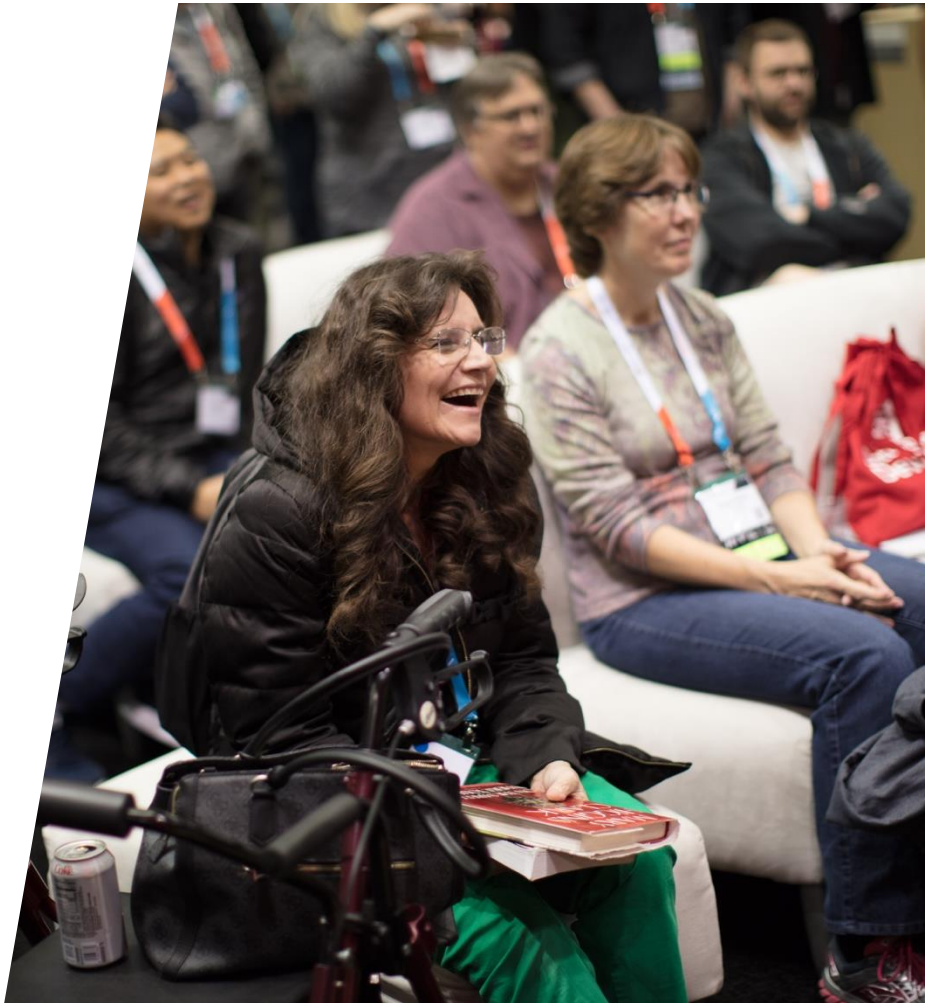
Sr. Technology Strategist, SUSE

Craig Liddle

Sales Engineer, SUSE



Please silence cell phones



Explore
everything PASS has to offer

Free Online Resources

Newsletters

PASS.org

Free online webinar events

Local user groups around the world

Free 1-day local training events

Online special interest user groups

Business analytics training

Get involved

Bryan Gartner

Sr. Technology Strategist
SUSE

/bryangartner

Career Journey : EE -> IT -> Software Engineer

Linux Tenure : 20+ years of FOSS contribution and advocacy

Craig Liddle

Sales Engineer

SUSE

/crliddle

Over 30 Years in IT

– Developer, Sys Admin, Consultant, Systems Mgmt, Sales Engineer

---

When not talking about Opensource Software I am a Dad to 8 kids

SUSE - Vision, Mission and Strategy

Our Vision *for customer success*

Powering digital transformation with agile open source solutions that enable enterprises to continually innovate, compete and grow.

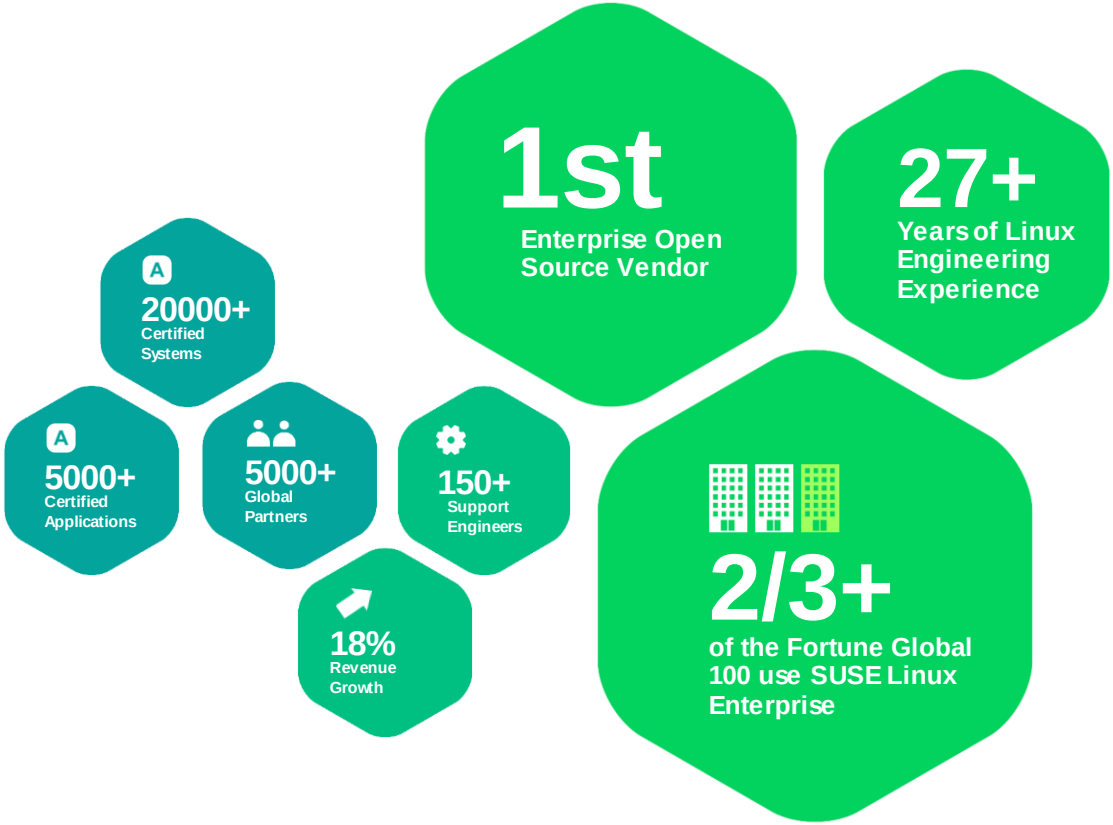
Our Mission *is how we get them there*

Innovating with partners and communities, to deliver and support enterprise-grade Linux, software-defined infrastructure and application delivery solutions to create, deploy and manage workloads *anywhere*: on premise, hybrid and multi-cloud. All with exceptional service, value and flexibility.

Our Strategy *for winning*

Operating as an independent trusted advisor and partner for enterprise digital transformation, to deliver open source software solutions, support and services through a global organization and partner ecosystem underpinned by secure, enterprise-grade technologies.

SUSE at a Glance

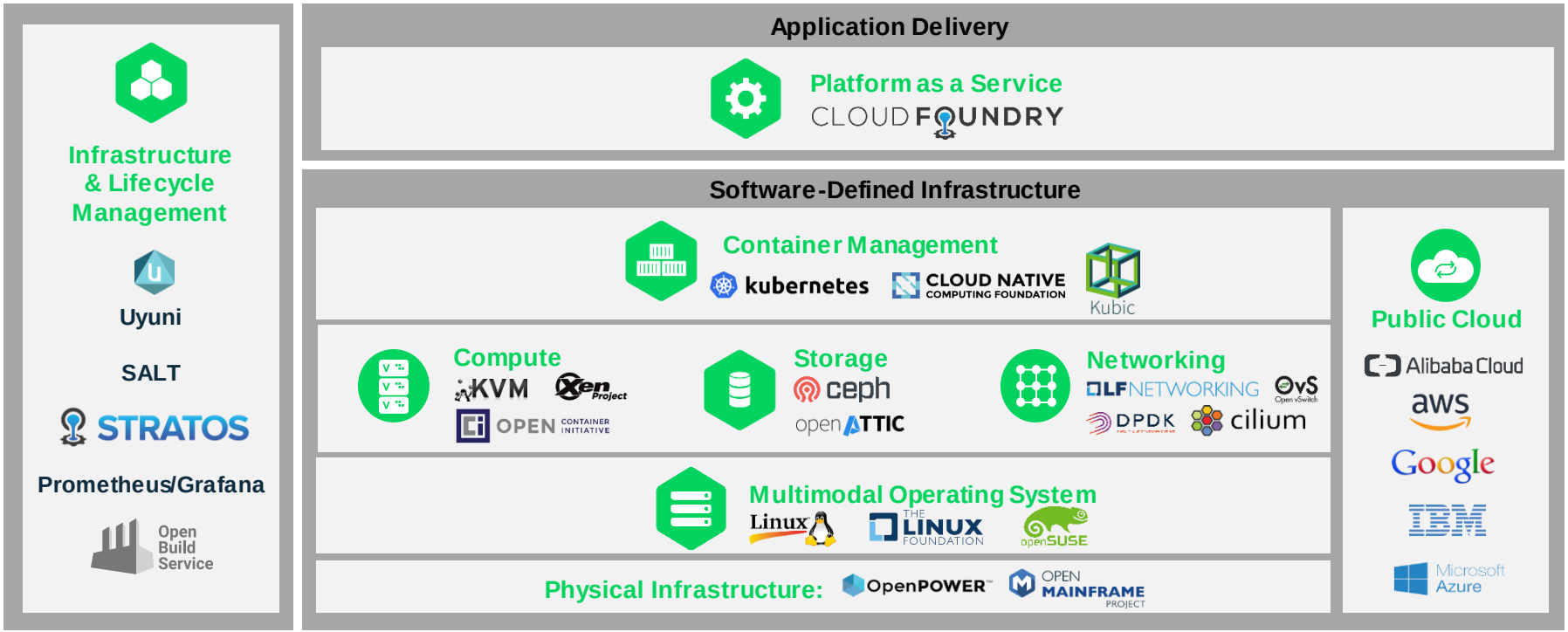


What Do We Mean by Always Open?

It's not just WHAT we do.
It's HOW we do it.

- True to open source vision
- Zero lock-in for customers
- Open to partnering

Open Source at the Heart of Our SDI and Application Delivery Approach



Focus on Digital Transformation Building on Open Source Solutions and Two Decades of Joint Innovation

- Enterprise cloud purpose-built for SAP HANA delivering on-demand economics at bare-metal performance with superior support and reliability.
- Innovative solutions that combine SUSE Linux Enterprise Server for SAP Applications on Azure with the Office365 suite, Power BI and Excel for SAP.
- Build once for Linux solutions on Azure and Azure Stack.
- SUSE Linux Enterprise Server for HPC is optimized for Microsoft Azure with Infiniband connectivity for enhanced networking and performance.
- Lower TCO for Microsoft SQL Server, a feature-packed solution known for its security and reliability now available on SUSE Linux Enterprise Server.

Agenda

1. The need to bridge analytics with business applications
2. Unifying the experience across physical, virtualized, containerized (on-premise + cloud)
3. Technology components that optimize/tie together data + analytics

Needing to build a bridge

Technology Trends Shaping the World

Open Source Is A Key Enabler

Increase Agility

Service Customers Better

Deliver New Offerings Faster

Drive Efficiency

What Does This Mean for You?

NEW DEMANDS

+

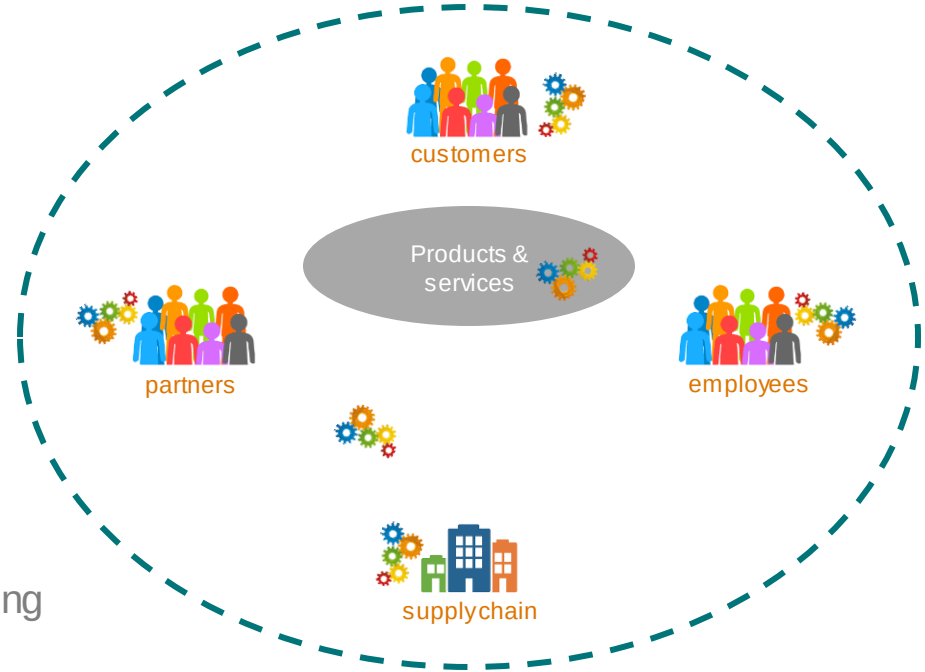
NEW OPPORTUNITIES

=

New Ways to Leverage Open Source

In Today's Era of Digital Transformation

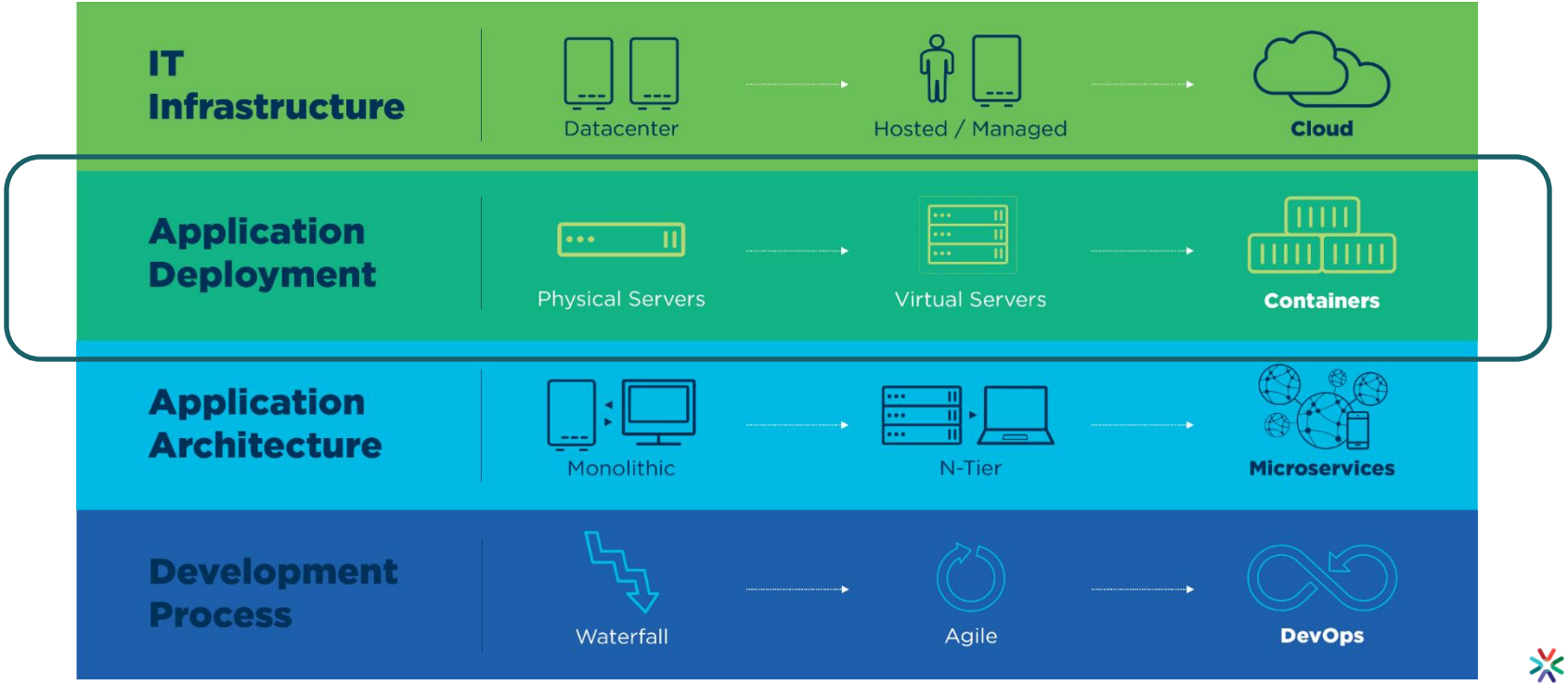
Every company is a technology company



Technology has become a driver of competitive advantage across the business

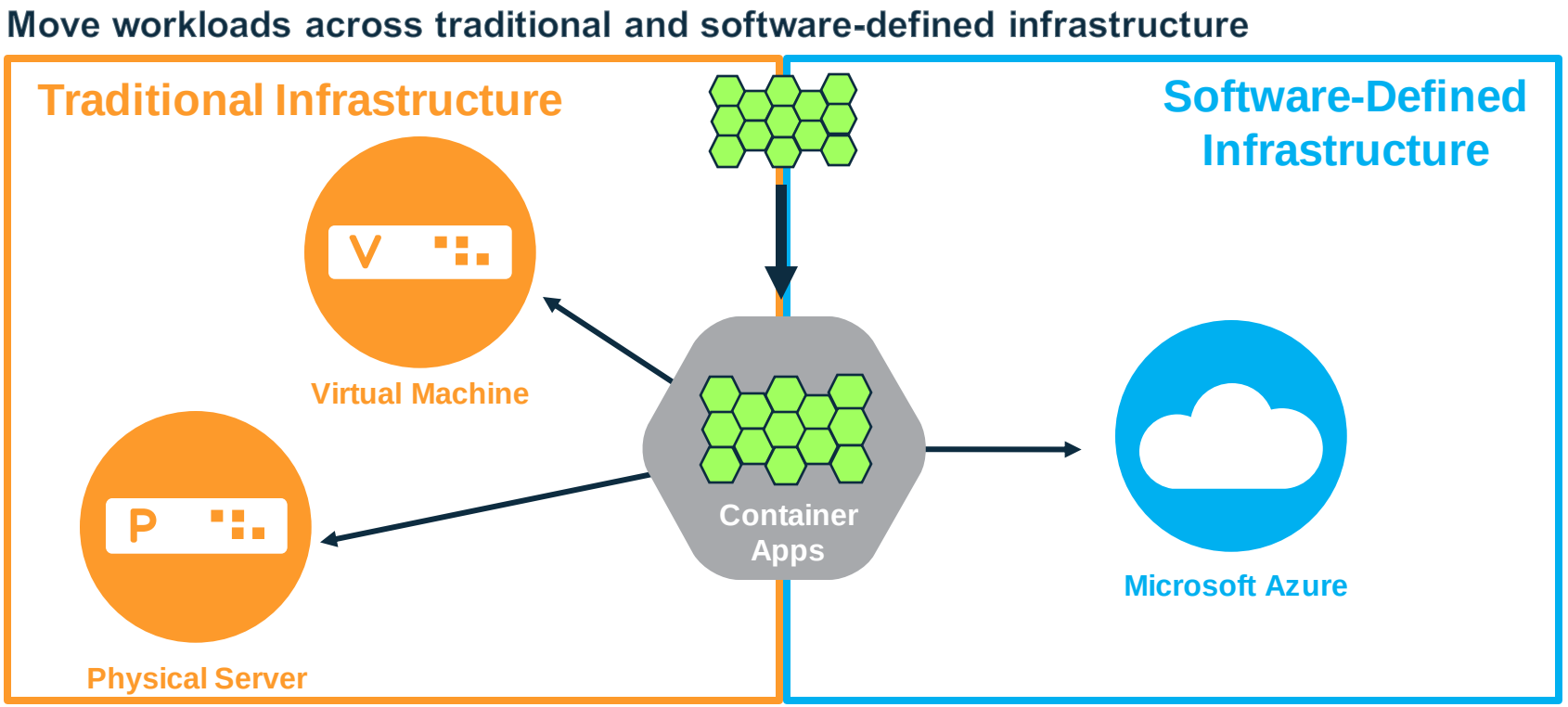
No longer a mere supporting actor

IT Transformation
Required to Meet Changing Business Demands

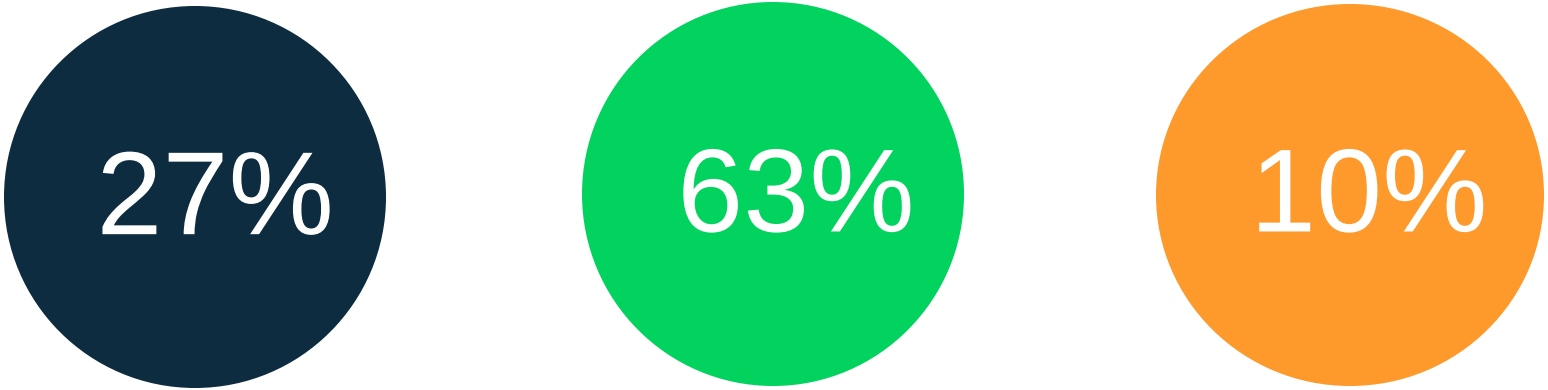


Multimodal IT

Application Mobility Across mixed IT



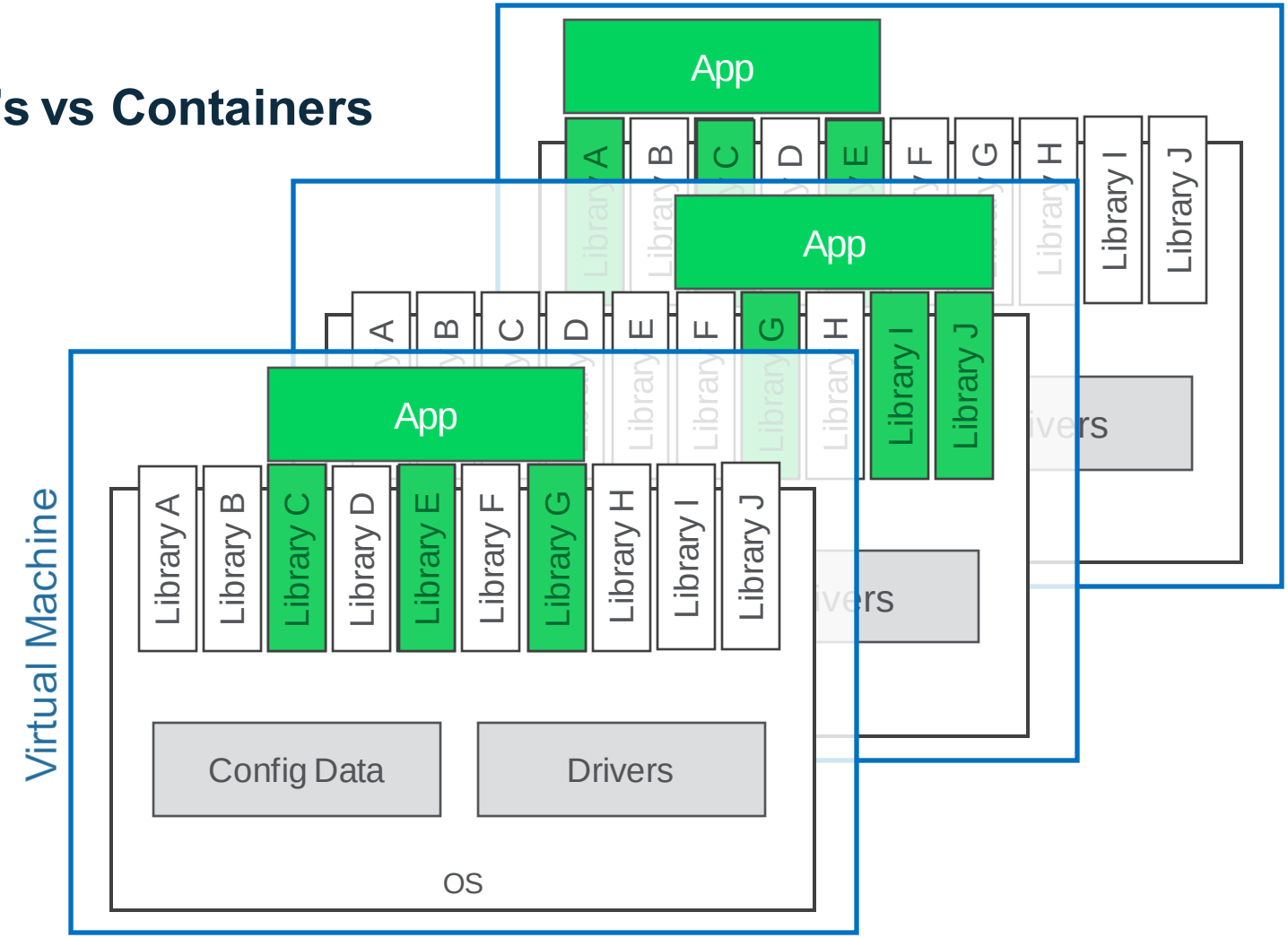
Container Adoption is Becoming Mainstream



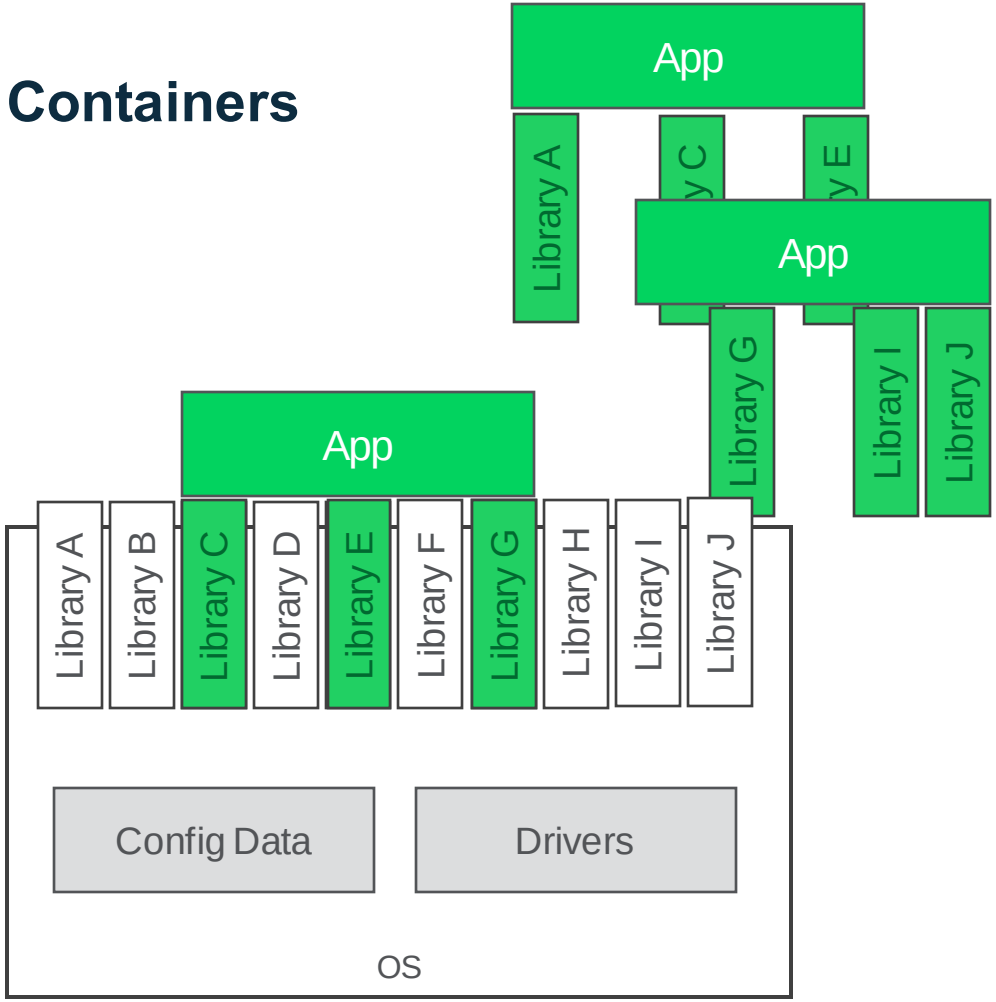
Best Practices for Running Containers and Kubernetes in Production. Gartner. 2019

Unifying the underlaying foundation

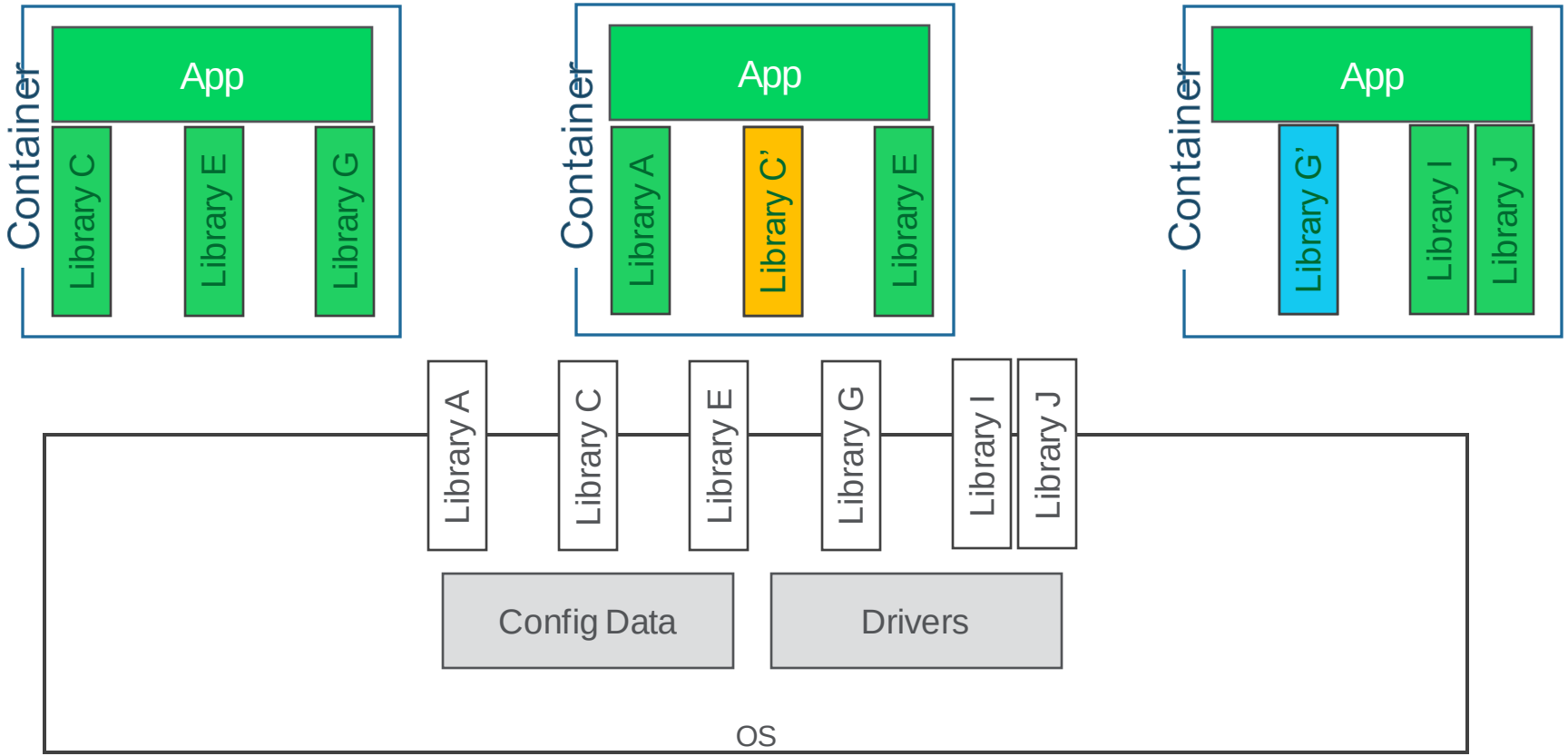
VM's vs Containers



VM's vs Containers



VM's vs Containers

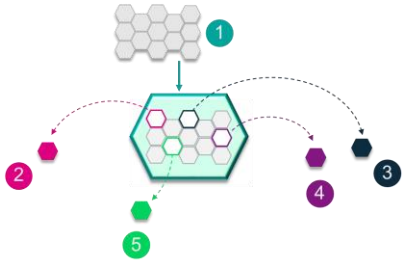


Containers Help Enterprises Accelerate IT

Streamline application development and delivery

Build and deliver new cloud native applications

Modernize legacy applications



Amyn Rajan and 6 others follow

Holger Mueller @holgermu · 9 Mar 2016

#CRInsights: @Microsoft Will Port **SQL Server** to Linux - Unthinkable Under Ballmer, A Natural Move for @satyanadella bit.ly/1M4QXn9

Ti Nes @kombit · 9 Mar 2016

SQL Server on Linux Shows Microsoft's More Flexible Side: Microsoft on Tuesday announced plans to release a ve... bit.ly/1UfCrQ1

1

Python Agent @Python_Agent · 9 Mar 2016

Speaking in Tech: **SQL Server** on Linux ? Hell freezes over for Microsoft #bolts dragplus.com/post/id/339314...

Bryan Goodrich @bryangoodrich · Oct 26

As a Linux guy, i just went fangirl over that SQL Server on Linux demo! EEEEEEEEEE #sqlsummit #RedHat #Linux

Adam Koehler @SQL_Geek · Oct 27

Dropped into the Sql Server on Linux presentation. Holy cow! I'm hooked! #sqlsummit

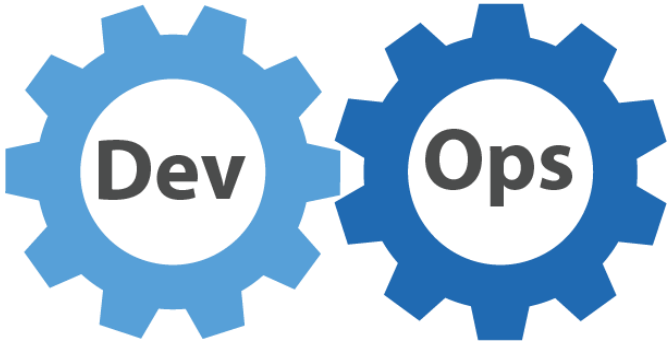
Why SQL Server Containers

Portable
Run anywhere Docker is supported

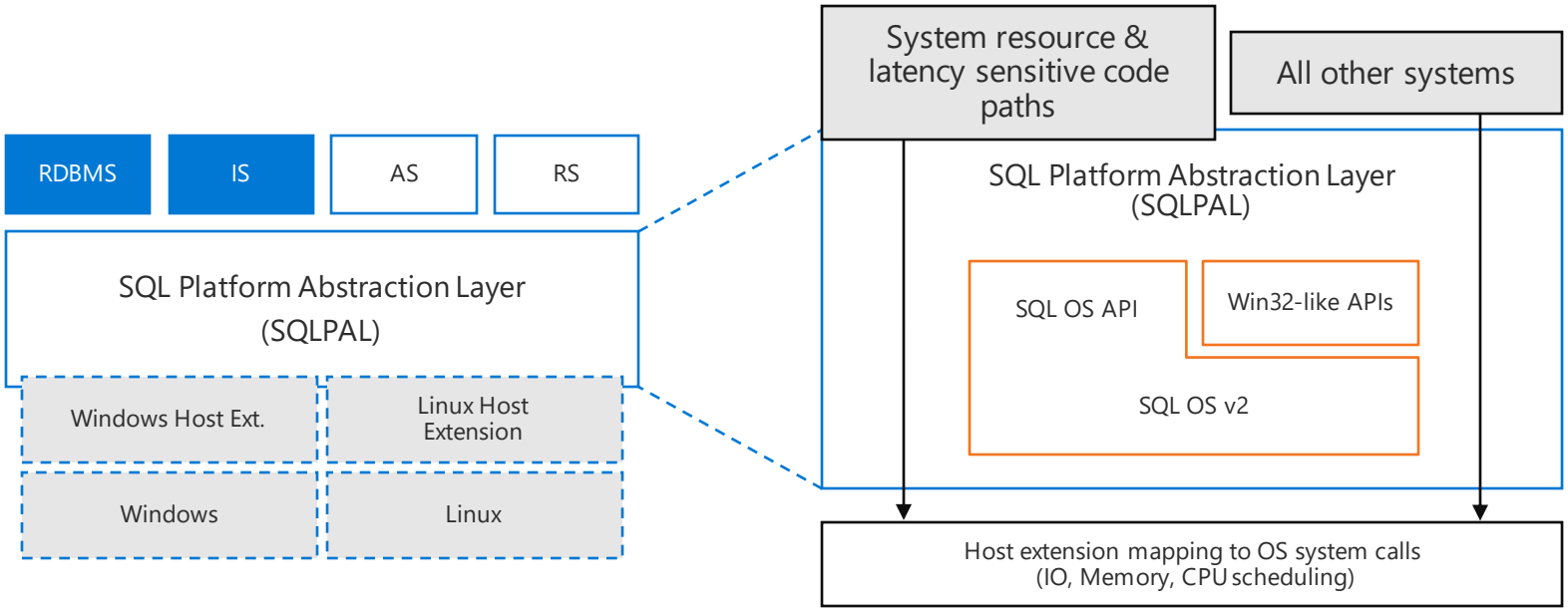
Lightweight
Reduced disk, CPU, and memory footprint

Consistent
Consistent image of SQL Server, scripts, and tools

Efficient
Faster deployment, reduced patching, and less downtime

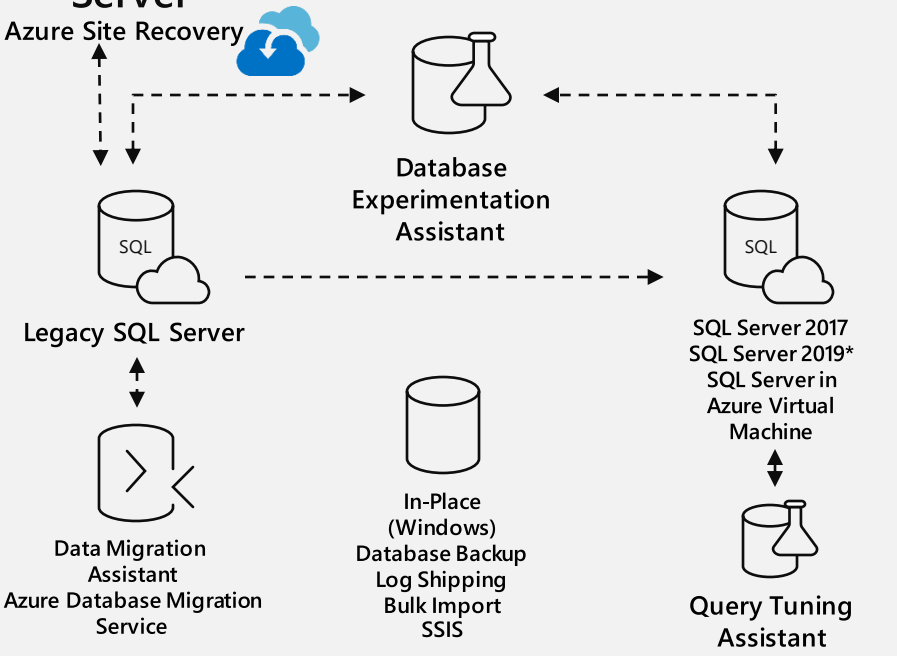


The same abstraction layer with SQL Server on Linux



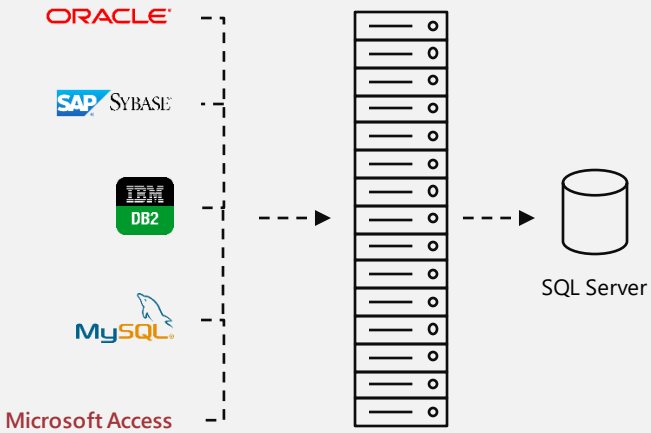
Migrate to the Modern SQL Server

Migration from legacy SQL Server



** Coming by GA*

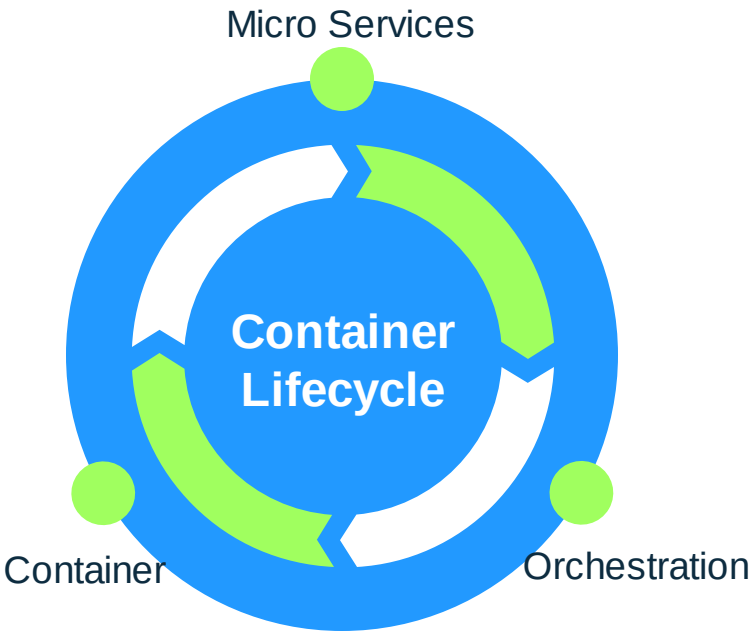
Migration from external databases



SQL Server Migration Assistant (SSMA)

Integrating the necessary components

Container Runtime Engine Alone is Not Sufficient



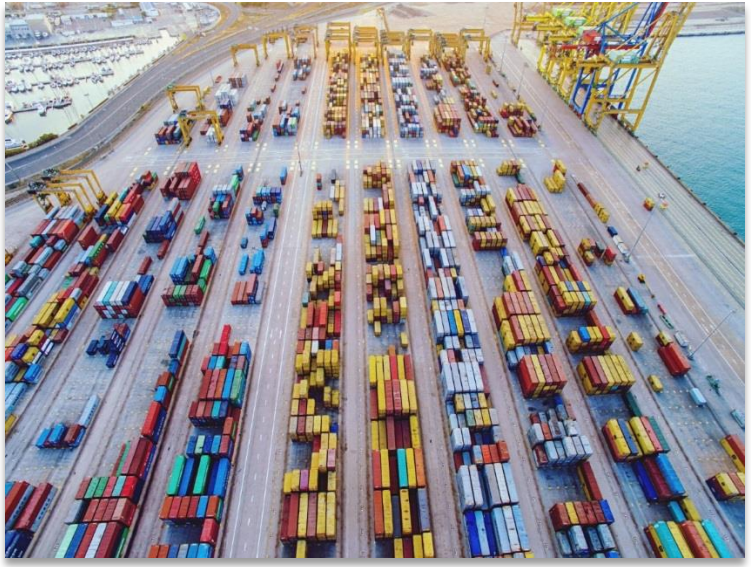
Provision	Manage	Automate	Host Services

Deploying at Scale Requires Automation

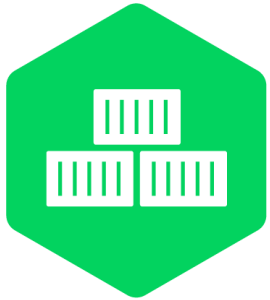
Orchestration
- Scheduling
- Service discovery

Performance and availability
- Scaling
- Load balancing
- Self-healing
- Monitoring

Maintenance
- Rollout
- Rollback



SUSE CaaS Platform



Enable IT and DevOps professionals to more easily deploy, manage and scale container-based applications and services.

- **Accelerate** modern application delivery with Kubernetes, today's leading container management platform.
- **Simplify** Kubernetes administration, with an exceptional operator experience.
- **Maximize** return on your investment with a flexible, no lock-in solution.

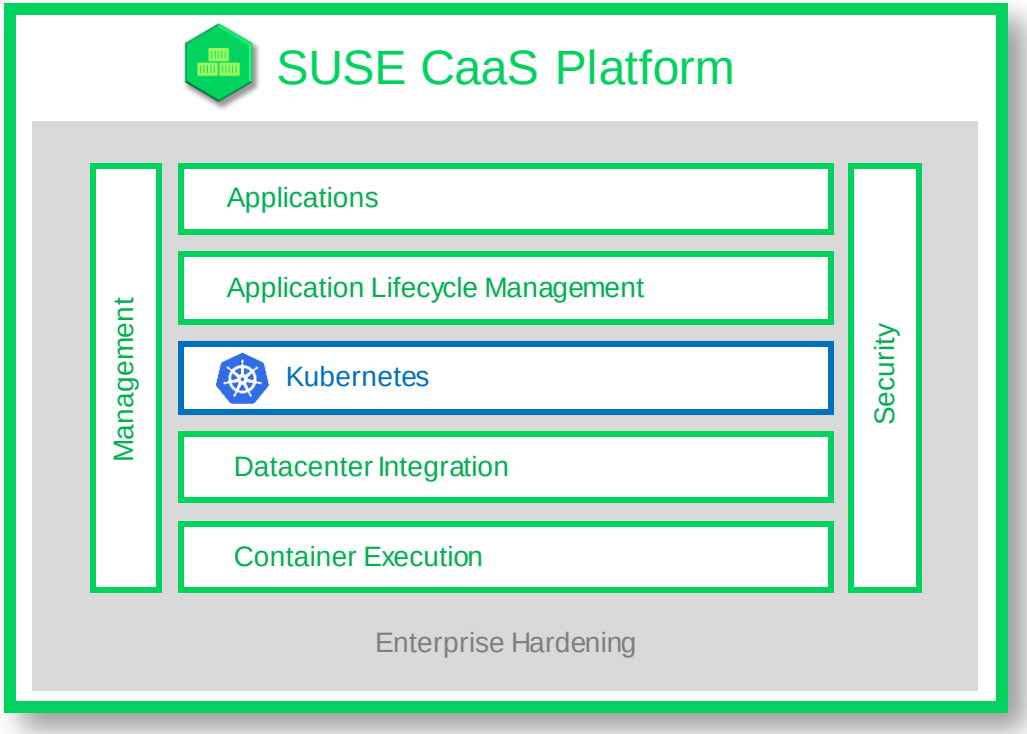
1
Complete package for faster time-to-value

3
Public clouds offer pre-defined deployment configurations

75%
Enterprises will be running containerized workloads in production by 2022

Simplify Kubernetes Administration

With a complete and commercially supported distribution



SQL Server 2019 and Linux and Containers

New Features for Linux

- Replication
- Change Data Capture
- Distributed transactions
- Machine Learning
- Polybase
- Tempdb files auto-config

Containers

- Microsoft Container Registry
- Images (Ready built or Build Your Own)
- Non-root Containers
- SQL Server on Windows Containers (Private Preview)

SQL Server on Linux: *Easy*

Deploy On Baremetal (or Virtual Machine)

- Download the Microsoft SQL Server SLES repository configuration file:
  - sudo zypper addrepo -fc http://packages.microsoft.com/config/sles/15/mssql-server-2019.repo
- Refresh your repositories:
  - sudo zypper --gpg-auto-import-keys refresh
- Run the following commands to install SQL Server:
  - sudo zypper install -y mssql-server
- After the package installation finishes, run mssql-conf setup and follow the prompts to set the SA password and choose your edition:
  - sudo /opt/mssql/bin/mssql-conf setup

SQL Server on Linux: *Easier*

Deploy On Container Host

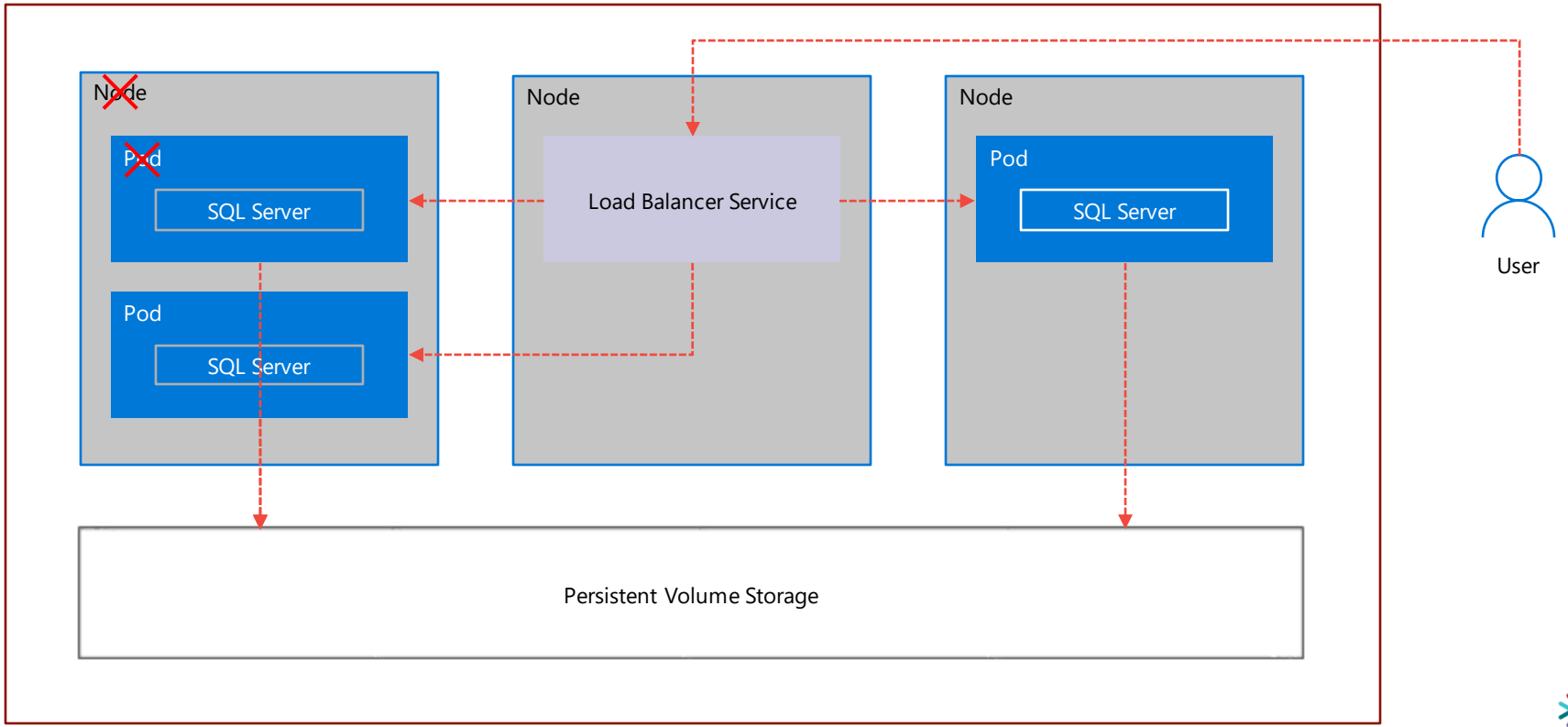
- Download the Microsoft SQL Server container image:
  - docker pull mcr.microsoft.com/mssql/server
- Run the container:
  - docker run -e "ACCEPT_EULA=Y" -e "MSSQL_SA_PASSWORD=Sql2017isfast" -p 1401:1433 --name sql1 –d docker pull mcr.microsoft.com/mssql/server

SQL Server on Linux: *Easiest*

Deploy On SUSE CaaS Platform

- Download, install and run the Microsoft SQL Server:
  - helm install --name sql-server stable/mssql-linux --set acceptEula.value=Y --set sapassword=Testing1122 --set edition.value=Developer

SQL Server - Shared storage HA in Kubernetes



SUSE Enterprise Storage

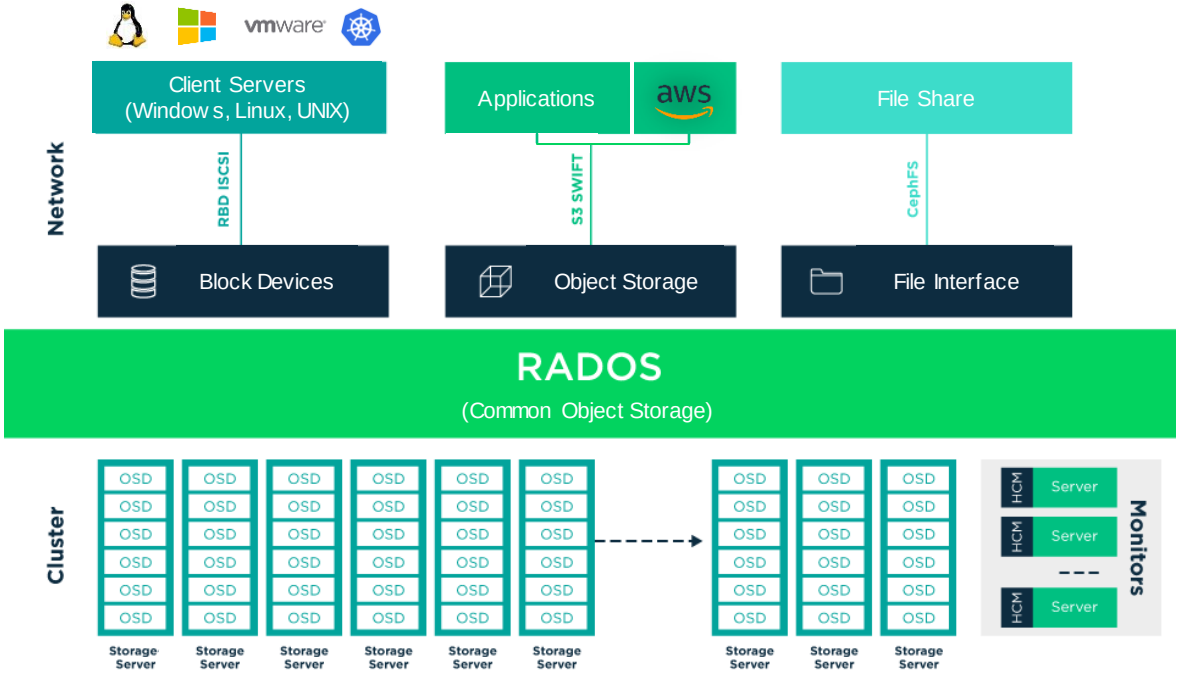
An intelligent software-defined storage management solution, powered by Ceph technology that enables IT to transform their enterprise storage infrastructure to:

- **Deploy a highly scalable** and resilient environment with no single points of failure.
- **Reduce IT costs** by using commodity off-the-shelf servers and disk drives.
- **Automatically optimize and add storage** when needed without disruption.

Reduce	Cut	Adapt
Capital Expenditures	Operational Expenditures	Quickly to Changing Market Conditions

Why Ceph?

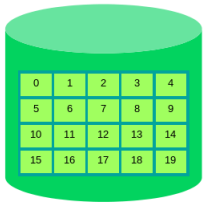
Easy integration with Linux, Windows, VMware and cloud



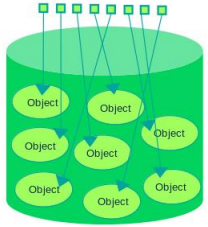
The core of SUSE Enterprise Storage

Support for block, object and files storage

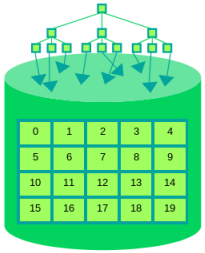
- This flexibility means you can create storage pools that span spinning or solid-state disks based on your specific storage needs.
- No need to deploy separate systems for different data types, a legacy practice that leads to data silos and prevents organizations from making the fullest, best use of their data.
- The various storage types are made available via traditional protocols like iSCSI, SMB/CIFS, and NFS or the more modern RBD, CephFS and object protocols like S3.



Block Storage



Object Storage



File Storage

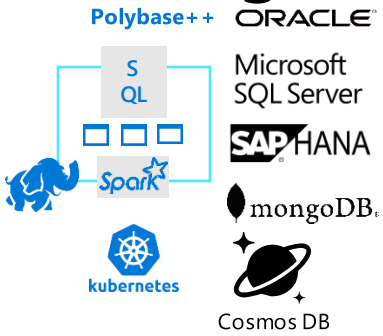
The core of SUSE Enterprise Storage

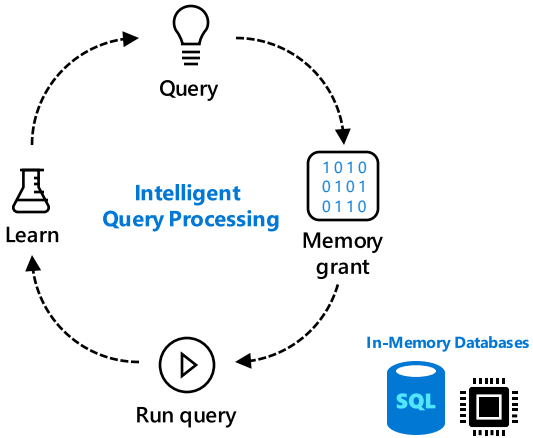
Sync to external clouds

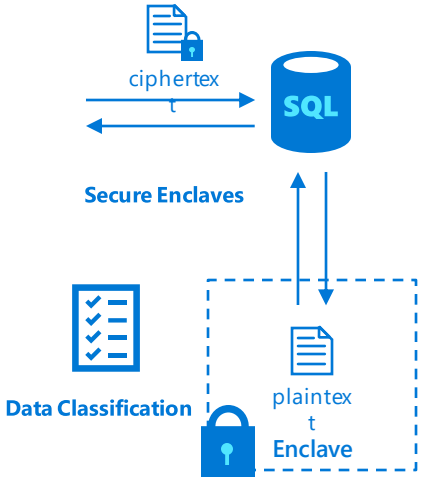
- Users run SUSE Enterprise Storage or another application in the public cloud and seamlessly copy data into that public cloud deployment
- It's a must for any hybrid cloud deployment
- One-way Ceph-to-Ceph mirroring

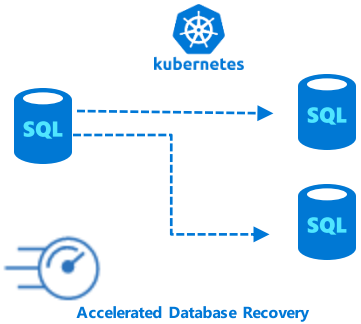
Magic Quadrant for Analytics

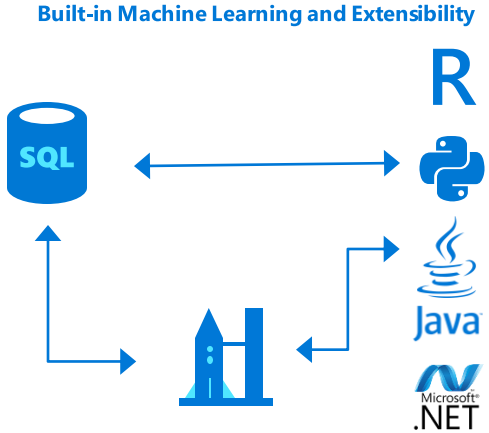
Solving Modern Data Challenges

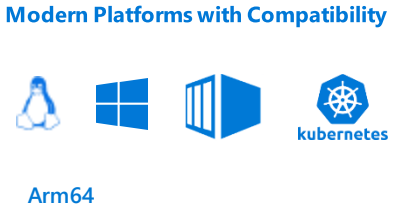






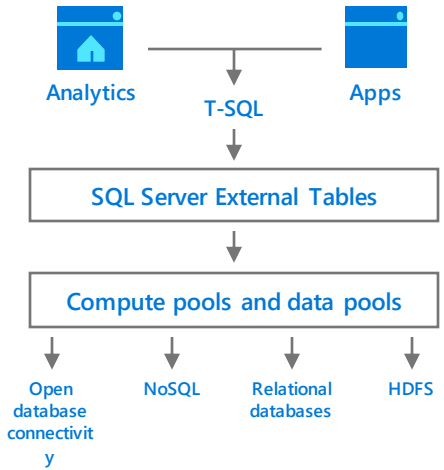






Linking Big Data Clusters with SQL Server

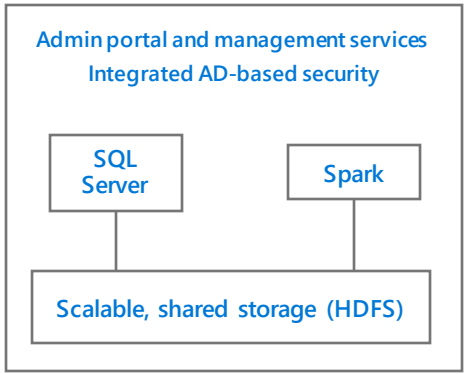
Data virtualization



Combine data from many sources without moving or replicating it

Scale out compute and caching to boost performance

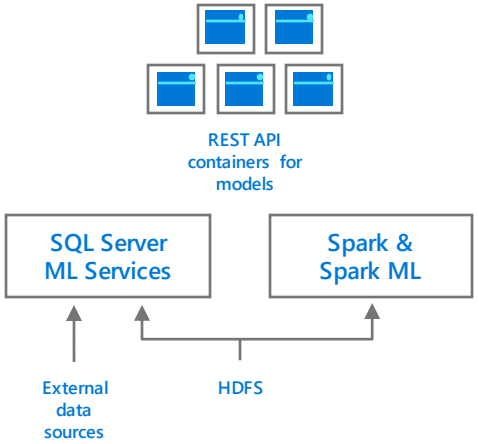
Managed SQL Server, Spark, and data lake



Store high volume data in a data lake and access it easily using either SQL or Spark

Management services, admin portal, and integrated security make it all easy to manage

Complete AI platform



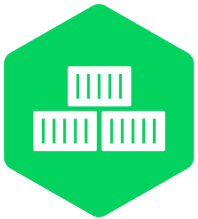
Easily feed integrated data from many sources to your model training

Ingest and prep data and then train, store, and operationalize your models all in one system

Summary

1. Bridge analytic (AI / ML / DL) workflows for business intelligence applications
2. Leverage the agility / portability of containers and the orchestration of Kubernetes (on-premise + cloud)
3. Connect the data sources / lakes / warehouse to tie together with your analytics

Reference Material



SUSE CaaS Platform

Product Information:

https://www.suse.com/products/caas-platform/

Documentation:

https://documentation.suse.com/suse-caasp/4/

SUSE Enterprise Storage

Product Information:

https://www.suse.com/products/suse-enterprise-storage/

Documentation:

https://documentation.suse.com/ses/6/

Session Evaluations

Submit by 5pm Friday, November 15th to win prizes.

3 WAYS TO ACCESS

Go to PASSsummit.com

Download the GuideBook App and search: PASS Summit 2019

Follow the QR code link on session signage

Questions

PASS

Thank You

[Bryan Gartner]
[Craig Liddle]

PASS