



ENTERPRISE DATA MANAGEMENT FOUNDATIONS

The benefit of a Red Hat platform for enterprise workloads

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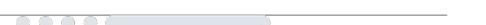
May 7, 2019

AGENDA

- Enterprise workload data management foundations
- Red Hat ISV engagement
- Open source database choice
- The value of a Red Hat subscription



CONTROL. CONFIDENCE. FREEDOM.



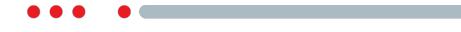
ENTERPRISE WORKLOAD DATA MANAGEMENT FOUNDATIONS

APPLICATION CONSIDERATIONS

Data management foundational with complex criteria driving technology choice

Existing circumstances

- Corporate standards, guidelines and recommendations
- IT staff competencies
- Budgetary implications



Technical, infrastructure, and application considerations

- Application ISV requirements/recommendations
- Infrastructure and interoperability requirements
- Technical requirements
- Application control



TECHNICAL AND BUSINESS ENVIRONMENT DECISION

A FOCUS ON DATA MANAGEMENT

What we do

- Performance engineering and characterization
- Upstream technology collaboration, integration, stabilization
- Enabling the hardware platforms our customers need
- ISV collaboration to promote rapid certification
- Enhanced product tooling and automation
- Ship select set of open source databases



Tangible benefits

- RHEL Ecosystem: performance, scalability, manageability, security
- Easy access to install & update databases
- Accelerated certification
- Reference platforms

RED HAT ENGAGEMENT MODEL | PLATFORMS

What we do

- Product enablement with strategic partners
- Collaborate on use cases
- Facilitate upstream engagement
- Validate use cases and define features
- Align product roadmaps and timelines with partners



Tangible benefits

- Deliver features important to customer by driving joint upstream engineering efforts
- Ensure Red Hat products work as expected on partner platforms
- Provide assurance through accelerated certification to Red Hat Certified Hardware and Certified Cloud and Service Provider (CCSP) Catalogs

TESTING EVERY RELEASE, EVERY PLATFORM



Red Hat Scale Lab

- 341 Nodes/ 8,072 cores
- 1 x 1Gb Network/ 4 x 10Gb Network
- High performance storage configurations

Public Cloud

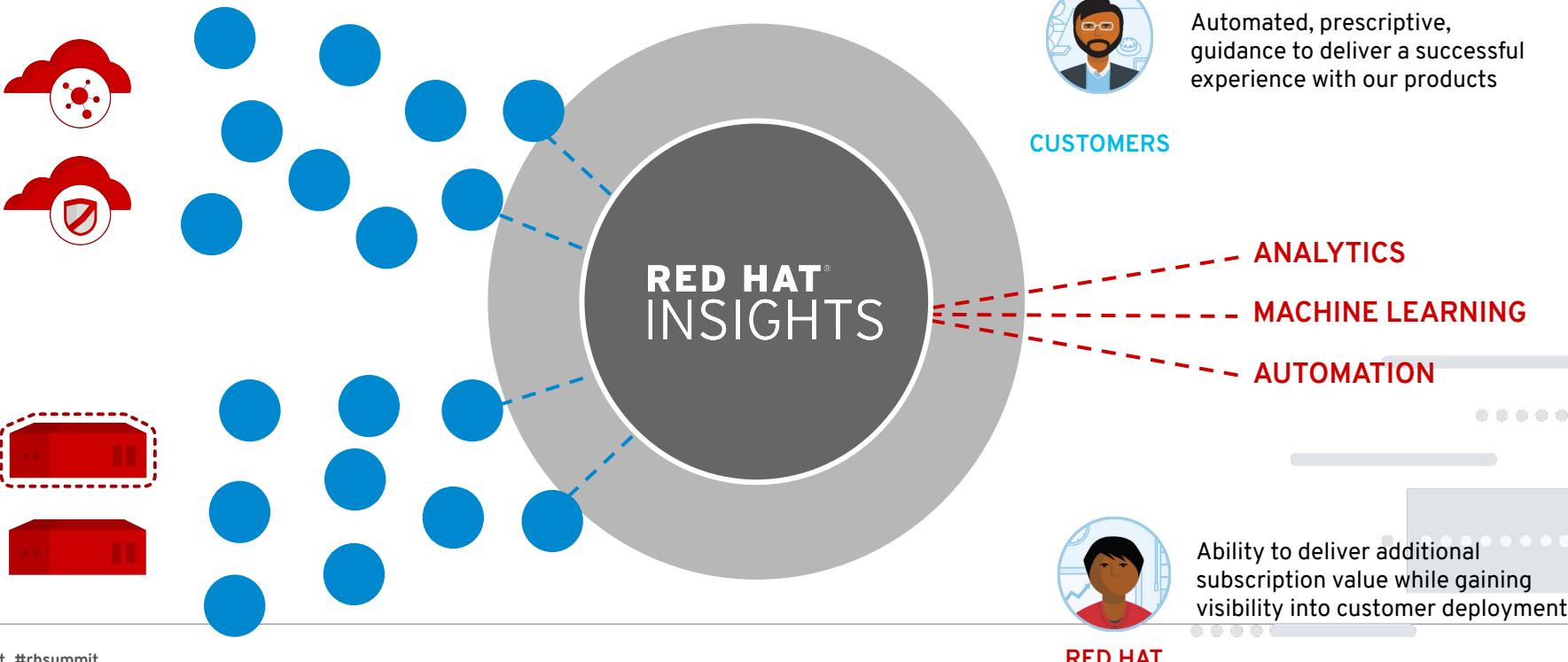
- Extend public cloud testing infrastructure with multiple public cloud providers
- Provide consultative support for CCSP ecosystem

LARGE, ONGOING INVESTMENT TO ENSURE
HARDWARE AND APPLICATION COMPATIBILITY

RED HAT INSIGHTS

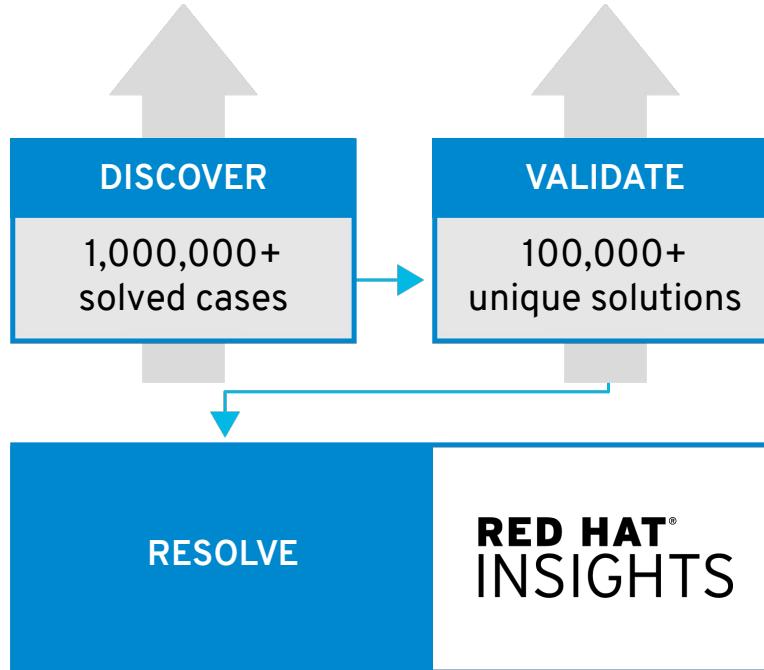
Automated, experience driven, proactive guidance for customer success with our products

NOW INCLUDED with Red Hat Enterprise Linux subscriptions!



PROACTIVE & CONTINUOUS ASSESSMENT

Improving Manageability



- Continuous identification of new risks driven by unique industry data
- Based on real-world results from millions of enterprise deployments
- No new infrastructure to manage
- Integrated with tools you already have

“85% of critical issues raised to Red Hat® support are already known to Red Hat or our partners.”

– RED HAT GLOBAL SUPPORT SERVICES

RED HAT ISV ENGAGEMENT

RED HAT ENGAGEMENT MODEL | ISVs

What we do

- Collaborate with our ISV ecosystem to help partners develop software that is optimized for RHEL
- Enhance upstream open source components to optimize their interaction with ISV solutions

Tangible benefits

- Deliver capabilities important to users
- Ensure partner solutions work as expected on Red Hat platforms
- Accelerate certification to Red Hat's Certified Software Catalog, Red Hat Container Catalog, CCSP Catalog



CHOICE IN COMMERCIAL AND OPEN SOURCE



Axibase, NuoDB, Oracle, IBM DB2, MemSQL, Tibero



Cassandra, Couchbase, InfluxDB, OrientDB, Redis

DATABASE ISVs | MICROSOFT SQL SERVER®

What we do

- Collaborate on sales, engineering and support
- Partner with OEMs, SIs and ISVs to deliver the total package

Tangible benefits

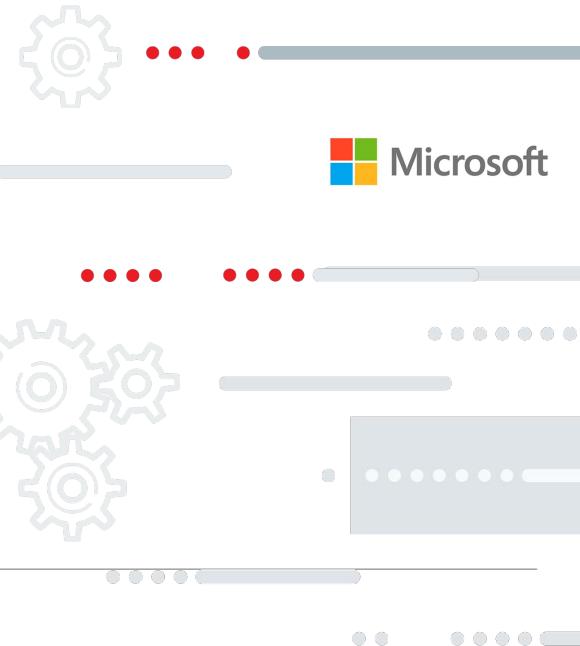
- Increased performance
- Improved manageability
- Increased security
- Seamless installation, configuration, and support experience



SQL SERVER PERFORMANCE

Increased performance with Red Hat Enterprise Linux 8

- Updates to the mssql-tuned profile optimized tuning for decision support workloads
- New TCP/IP stack delivers increased performance and BBR congestion control
- Storage block devices now use multi-queue scheduling to make the best use of bandwidth available from modern flash-based storage devices
- File System DAX supported for SQL Server on RHEL 8 allowing for acceleration with persistent memory
- XFS file system FUA enhancements for SQL Server - write request I/O traffic is reduced by ~50% for a SQL Server write-intensive workloads¹



DATABASE ISVs | SAP HANA®

What we do

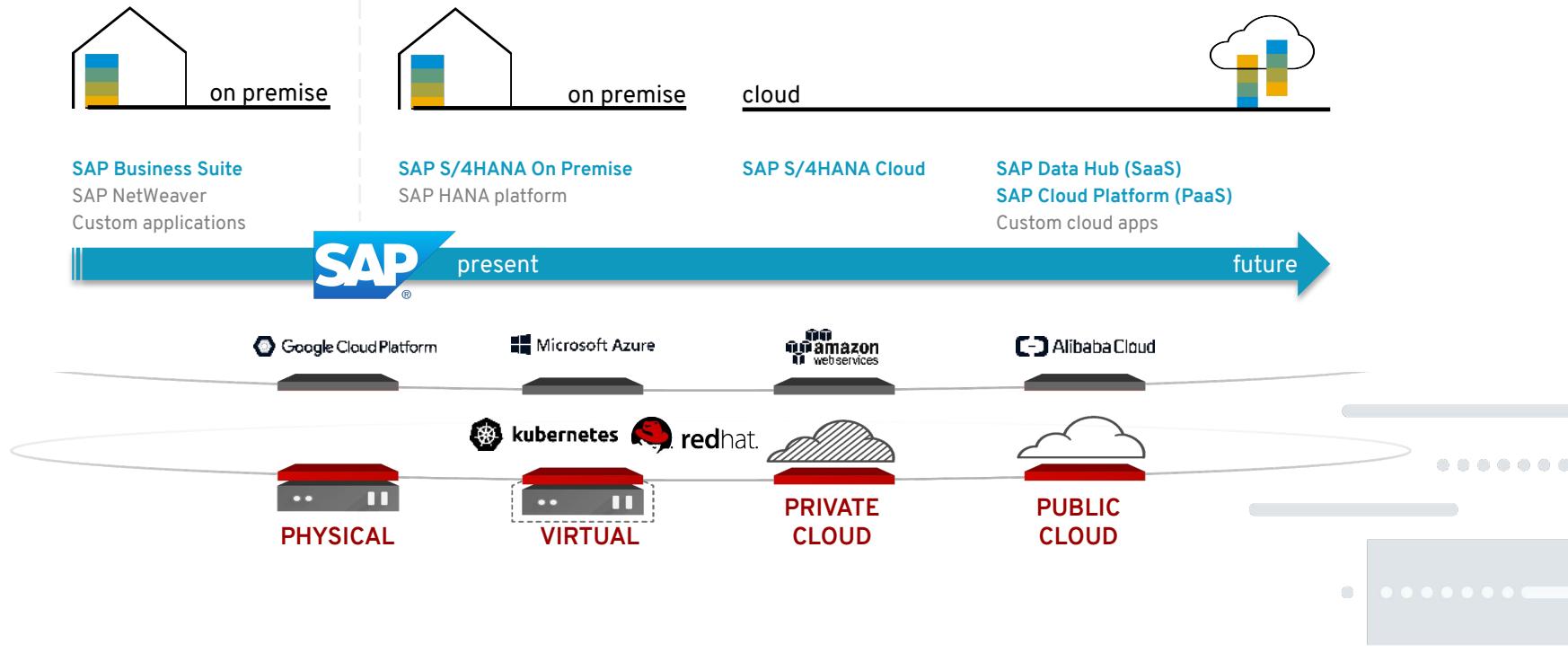
- Global team of SAP champions, working hand-in-hand with SAP support & product teams, incl. on-site engineering support at SAP headquarters
- RHEL is also one of the development platforms of SAP product portfolio
- Partner with OEMs, SIs and ISVs to deliver the total package



Tangible benefits

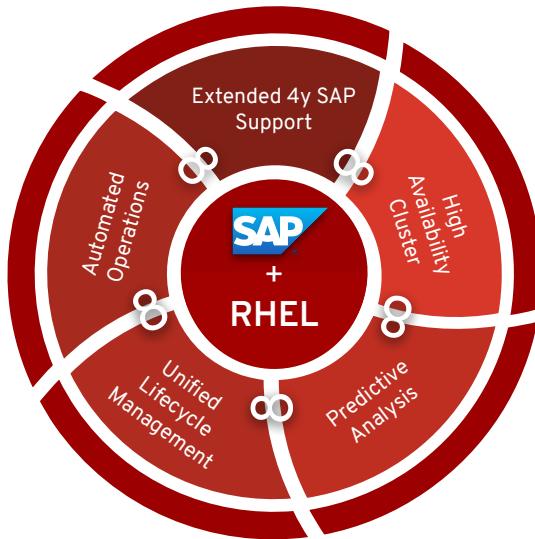
- Improved security & manageability e.g. in context of RHEL 8
- Optimized performance & reliability with RHV and RHEL HA
- Seamless installation, configuration, and support experience by means of automation and proactive monitoring & maintenance
- Unified Lifecycle Management across RHEL, RHV and Openshift

SAP S/4 HANA – The Journey



RHEL for SAP Solutions

Tailored for the needs of Business Critical Applications



Enabled for **continuous availability** of SAP applications, through integration with SAP HANA and SAP NetWeaver High Availability options (RHEL HA add-on and Red Hat SAP HA solution incl.)

Focus on **SAP application lifecycle**, providing a stable foundation and support for certain RHEL minor releases of up to 4 years from GA (RHEL Extended Update Support for SAP incl.)

Proactive monitoring and remote management of SAP landscapes, with real-time assessment for risks related to performance, availability, stability, and security (Red Hat Insights and Smart Management add-on incl.)

Ready to run, delivering high-performance profiles, runtime libraries and file system add-ons, turning SAP into a first class citizen on RHEL for SAP (RHEL for SAP solutions specific software components incl.)

Red Hat Solutions for SAP

| | | |
|----|--|---|
| 01 | Red Hat Enterprise Linux for SAP solutions applications | <ul style="list-style-type: none">• Designed to deliver upon needs of SAP customers• Includes high availability and proactive monitoring capabilities, along with remote management options and extended support |
| 02 | Red Hat Virtualization | <ul style="list-style-type: none">• Jointly tested with SAP• Providing more flexibility in how to operate SAP applications, while not sacrificing performance SLAs |
| 03 | Red Hat High-Availability for SAP | <ul style="list-style-type: none">• Leverage first class HA automation capabilities• Integration for SAP NetWeaver and HANA applications |
| 04 | Red Hat Automation | <ul style="list-style-type: none">• Increase efficiency in SAP landscape deployments• Perform proactive & automate configuration tasks based on Red Hat Insights & Smart Management capabilities |
| 05 | Red Hat Hybrid Cloud | <ul style="list-style-type: none">• Cloud optimized RHEL operating system• Provide first-class container runtime for hybrid cloud environments (public and private cloud) |

OPEN SOURCE DATABASE CHOICE

OPEN SOURCE DATABASES

- MySQL® | *most popular open source SQL database*
- MariaDB™ | *a more open MySQL fork*
- PostgreSQL™ | *an advanced open source SQL database*
- MongoDB™ | *huge document database*



Notes

- Commercial support available
- Proprietary extensions and enhancements available



DATABASE PACKAGING IN RHEL 8

Application Streams

- Databases are included in Application Stream
 - Application Streams have a specified life, i.e. 5 years
- New versions of databases can be released in the AppStream
 - Don't have to wait for next major RHEL release
 - Older versions will remain available
 - Updates and bug fixes will focus on current version
- Any version in the AppStream can be installed
 - Multiple versions on a single system done through containers

MySQL

- Most popular open source database¹
- Part of classic LAMP Stack
 - Dominates web applications
- Limited feature set & SQL compliance
- Easy to use
- Extremely fast read operations
- Dual licensed: GPL v2 & proprietary
- Community and Commercial versions available
- Owned by Oracle



1: Source: <https://db-engines.com/en/ranking>

MariaDB

- Clone/Fork of MySQL
 - Drop-in replacement for MySQL
 - Created by the original developers of MySQL after acquisition of Sun/MySQL by Oracle
 - Tracks developments in upstream MySQL project
- *Open Core* from MariaDB Corporation AB
 - See mariadb.com



PostgreSQL

- Most advanced open source relational database
 - Full SQL compliance, including ACID support
 - Excellent concurrency & support for read/write workloads
 - Stored procedures
 - Object/relational model
- Large ecosystem
- Enterprise DB® is the upstream for PostgreSQL and offers an enhanced PostgreSQL and commercial support



MongoDB

- Document (NoSQL) database
- Document model maps to the objects in application code
- Ad hoc queries, indexing, and real time aggregation provide powerful ways to access and analyze data
- Distributed database
 - High availability, horizontal scaling, and geographic distribution are built in and easy to use
- Now using *Server Side Public License*





CONTROL. CONFIDENCE. FREEDOM.

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CONTROL.

- Security & compliance
- Platform manageability

CONFIDENCE.

- Stability & Reliability
- Performance & Efficiency

FREEDOM.

- Enabling an optimal application experience through ecosystem engagement
- Multi-platform and deployment footprint support

ADDITIONAL SUMMIT SESSIONS

Performance analysis and tuning of Red Hat Enterprise Linux—part 1

Wednesday, May 9, 3:30 p.m. - 4:15 p.m.

Performance analysis and tuning of Red Hat Enterprise Linux—part 2

Wednesday, May 9, 4:30 p.m. - 5:15 p.m.

An Insights-ful Look into managing Red Hat Enterprise Linux

Thursday, May 9, 12:00 p.m.-12:15 p.m. and Thursday, May 9, 1:30 p.m.-1:45 p.m.

Deploy a modern data platform with SQL Server 2019 on Red Hat Enterprise Linux 8

Thursday, May 9, 1:00 p.m.-1:45 p.m.

SAP runs best on Red Hat Enterprise Linux for SAP Solutions

Thursday, May 9, 11:00 a.m.-11:45 a.m.

Managing and using application stream content in Red Hat Enterprise Linux 8

Wednesday, May 8, 11:30 a.m.-12:15 p.m.



THANK YOU



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