RED HAT SOLUTIONS FOR SAP

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Technical Enablement Manager SAP
Red Hat, Inc.

AGENDA

- Why Red Hat
- RHEL for SAP Solutions
- Contents/Solutions
- Advanced Possibilities with RedHat
- Resources

Why Red Hat?

Facts (Corporate Viability):

- 90% of the Fortune 500 trust Red Hat
- 70% Paid Linux market share
- > 2B$ revenue
- Development Powerhouse
  #1 Openstack, #2 Linux contributor

Scalability:

- Very large (500TB) SAP HANA installation
- OEMs prefer to run benchmarks on RHEL

Realize more VALUE while reducing costs

- RHEL for SAP Solutions delivers more capabilities
- Standard support versions available for QA, pre-production & testing to reduce spend
- Introducing state-of-the-art management and automation into your SAP landscape

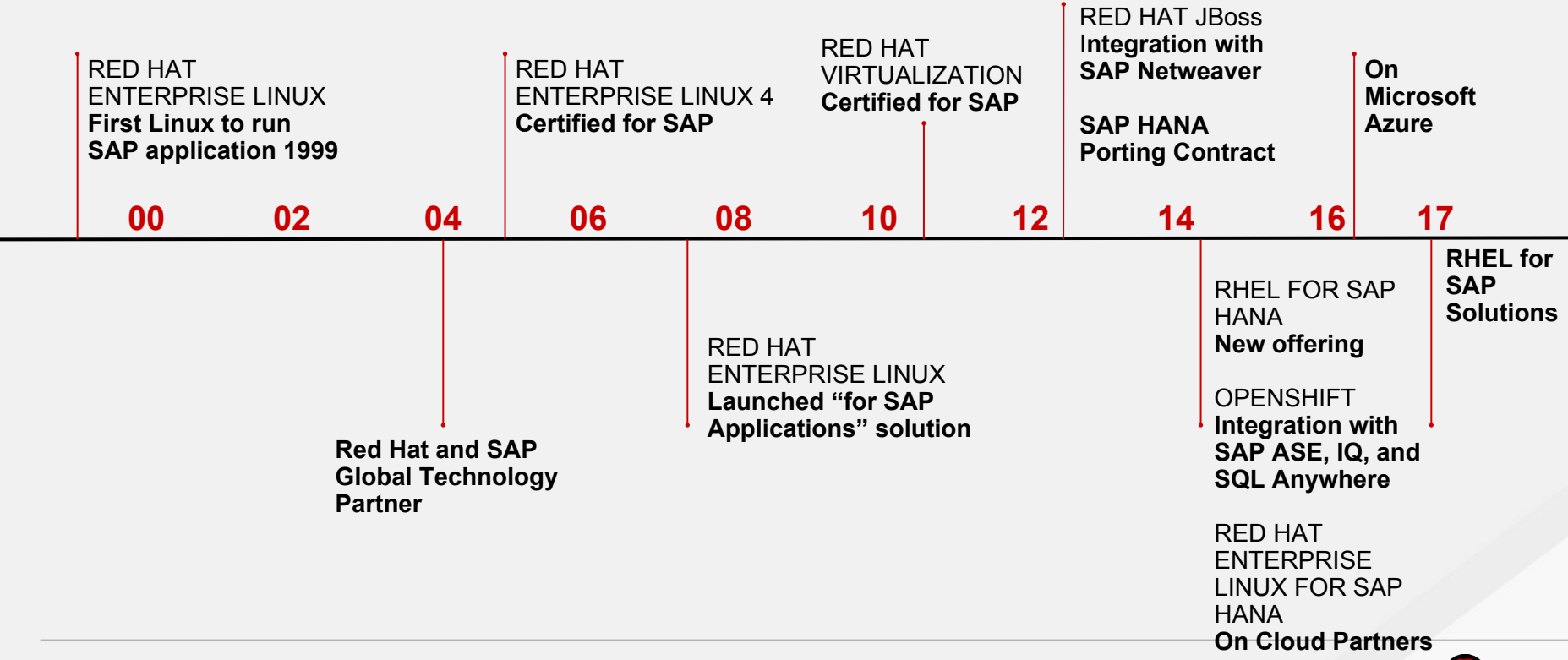
Meet the SLAs:

- Stable kernel interfaces for the life of a major release
- Application Compatibility Guide
- **ONE RHEL** for SAP and Non-SAP applications

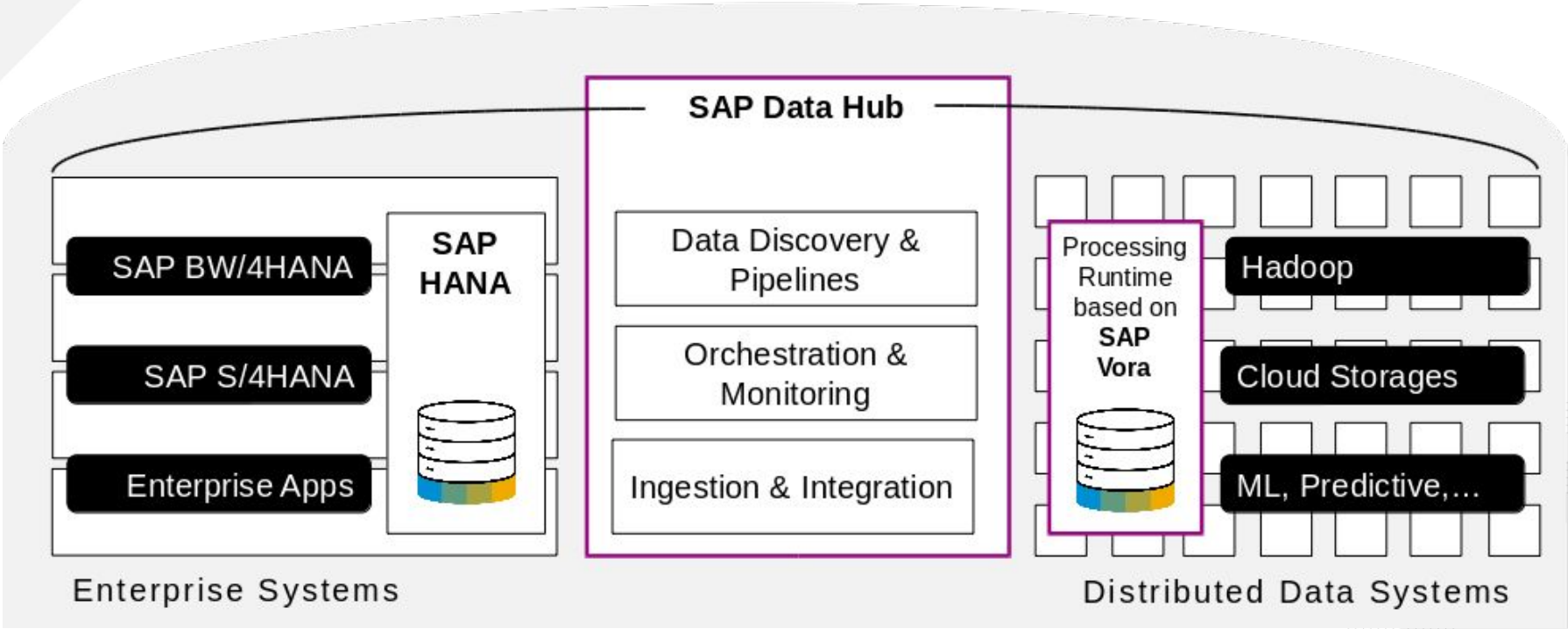
Completeness of the portfolio:

- Virtualization
- Management and Automation
- Application Integration
- OpenShift Container Platform
- SAP certified application integration

Red Hat and SAP:
A Track Record of Innovation



SAP Data Hub
Unifying Data Silos



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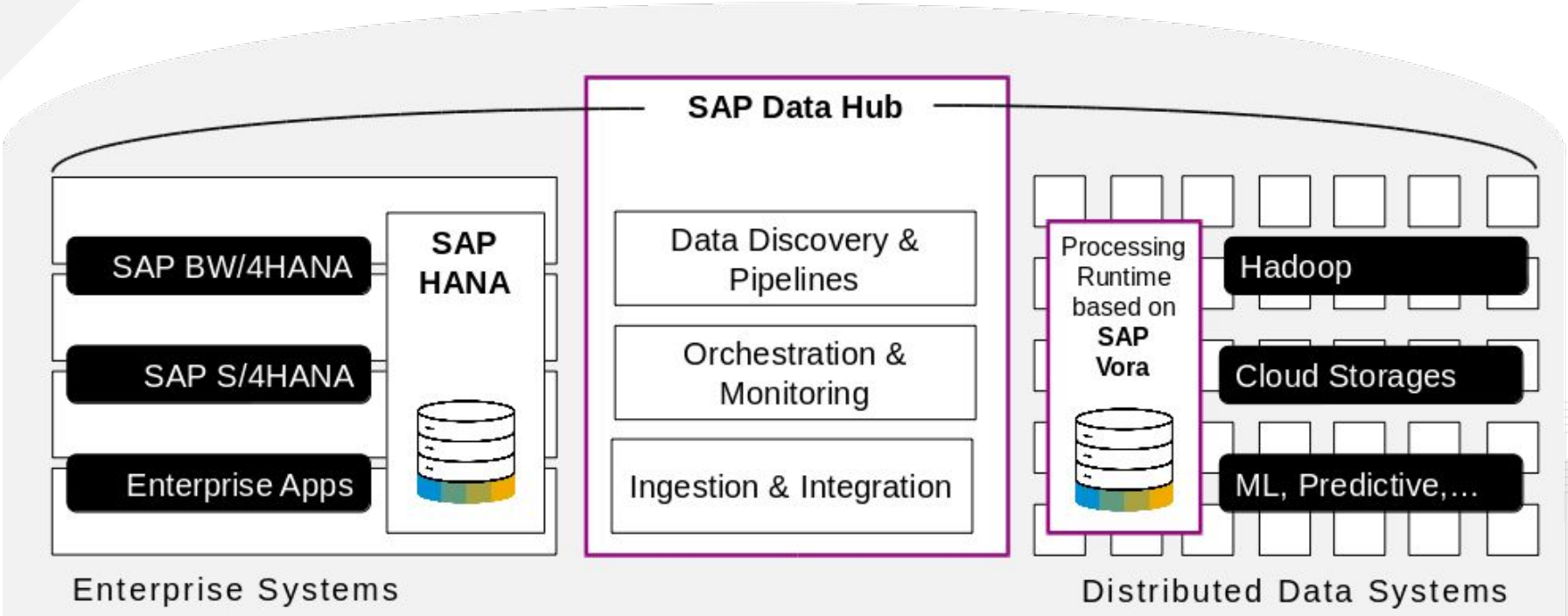
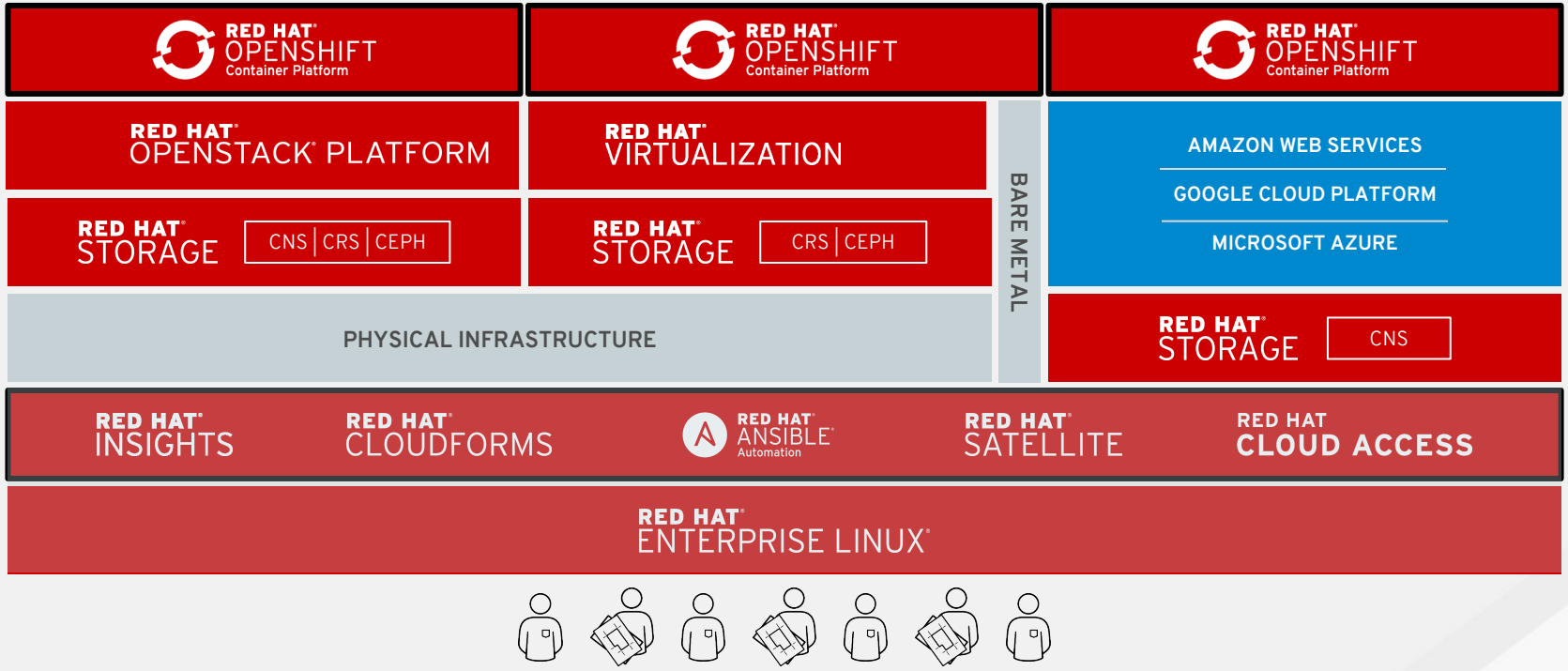
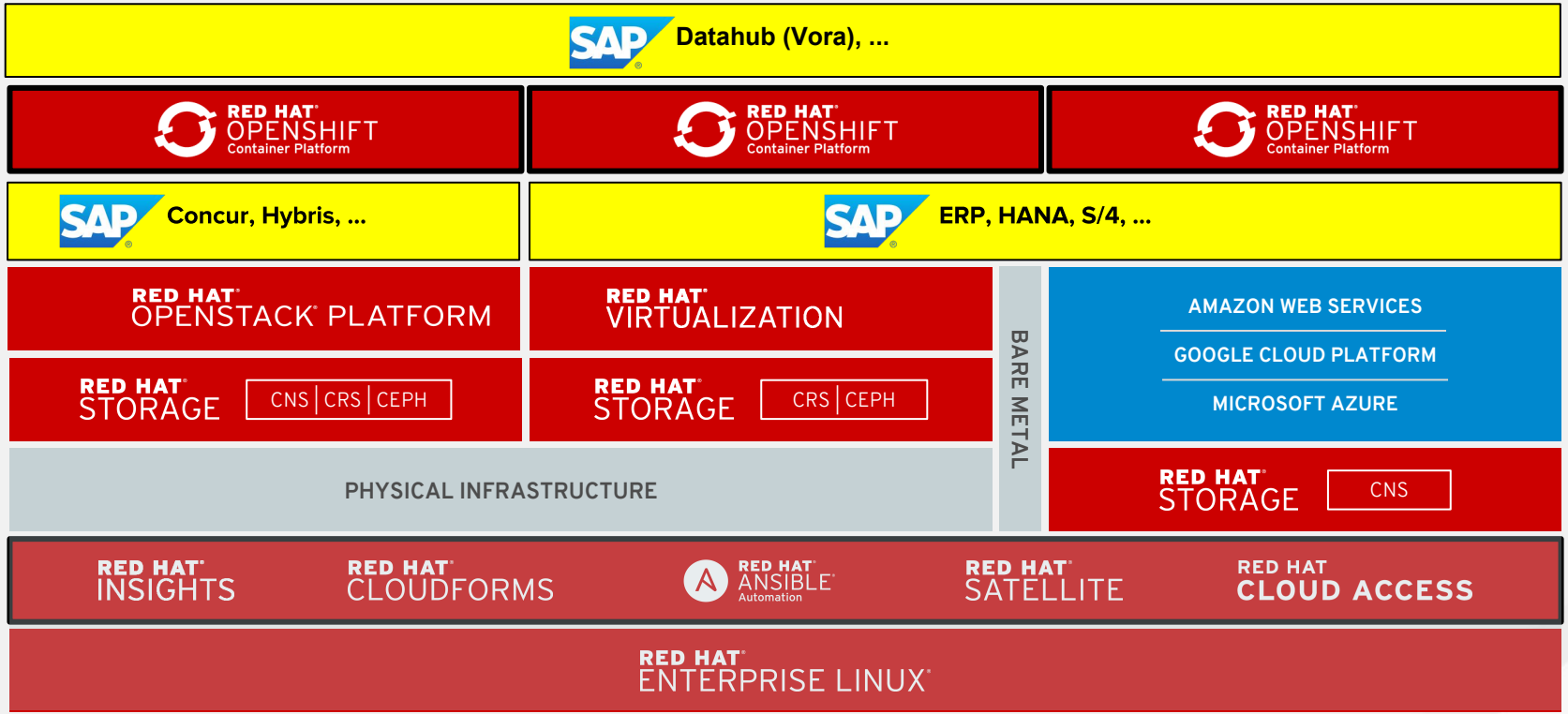


Red Hat Enterprise Linux for SAP Solutions | Red Hat OpenShift Container Platform (OCP) | Red Hat Enterprise Linux

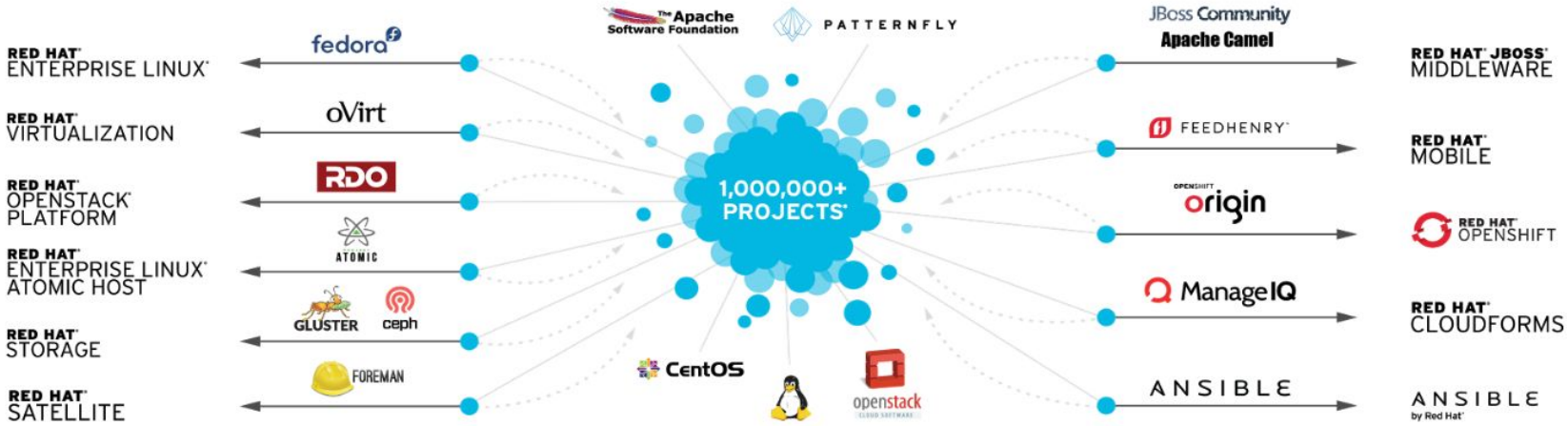
RED HAT MULTICLOUD ARCHITECTURE



RED HAT MULTICLOUD ARCHITECTURE

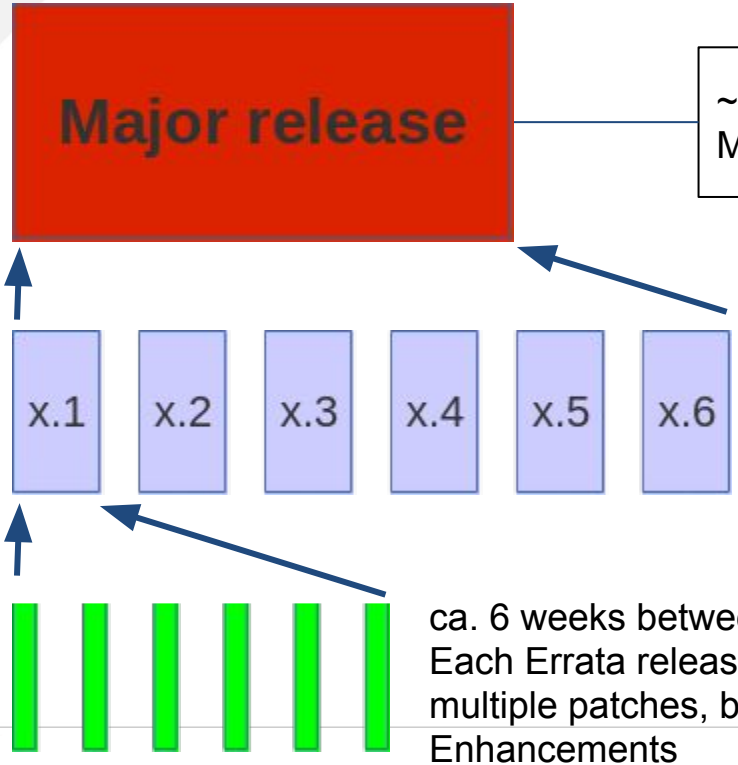


Upstream Development Model



1993	FOUNDED
1999	IPO
2002	FIRST RELEASE OF ENTERPRISE LINUX
2006	JBOSS ACQUIRED
2009	RED HAT VIRTUALIZATION RELEASED
	RED HAT ADDED TO S&P 500 INDEX
2011	CLOUDFORMS & OPENSHIFT RELEASED
	$1 BILLION IN REVENUE
2012	RED HAT STORAGE RELEASED
	OPENSHIFT ENTERPRISE RELEASED
2013	RED HAT OPENSTACK PLATFORM RELEASED
2014	CENTOS JOINS RED HAT
	INKTANK (CEPH), ENOVANCE (OPENSTACK), & FEEDHENRY (MOBILE) ACQUIRED
2015	ANSIBLE ACQUIRED
2016	**$2 BILLION IN REVENUE**
	3SCALE ACQUIRED

RHEL Release types: Major, Minor and Errata



~ 6 -9 months between minor releases. Minor releases introduce new features

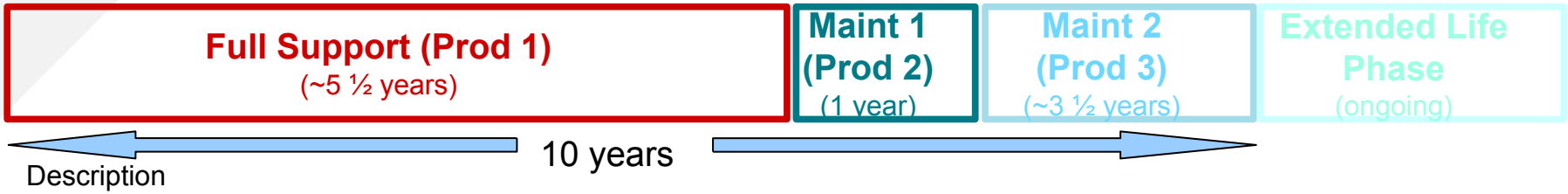
ca. 6 weeks between Errata Releases. Each Errata release may contain multiple patches, but no Feature Enhancements

ABI / API stability within major releases dramtically reduces test and migration efforts

Application only need to be certified against major releases e.g. SAP Business Applications!

https://access.redhat.com/articles/rhel-abi-compatibility

Red Hat Enterprise Linux – Life Cycle



Description				
Access to previously released content in Red Hat Network	yes	yes	yes	yes
Red Hat knowledge base, documentation, videos, ref arch's, etc.	yes	yes	yes	yes
Incidental technical support	unlimited	unlimited	unlimited	limited
Security errata	yes	yes	yes	no
Bug fix errata	yes	yes	yes	no
Minor releases	yes	yes	yes	no
Refreshed hardware enablement	native	limited native	through virtualization	no
Software enhancements	yes	no	no	no
Updated install images (provided with releases only)	yes	yes	yes	no

https://access.redhat.com/support/policy/updates/errata/

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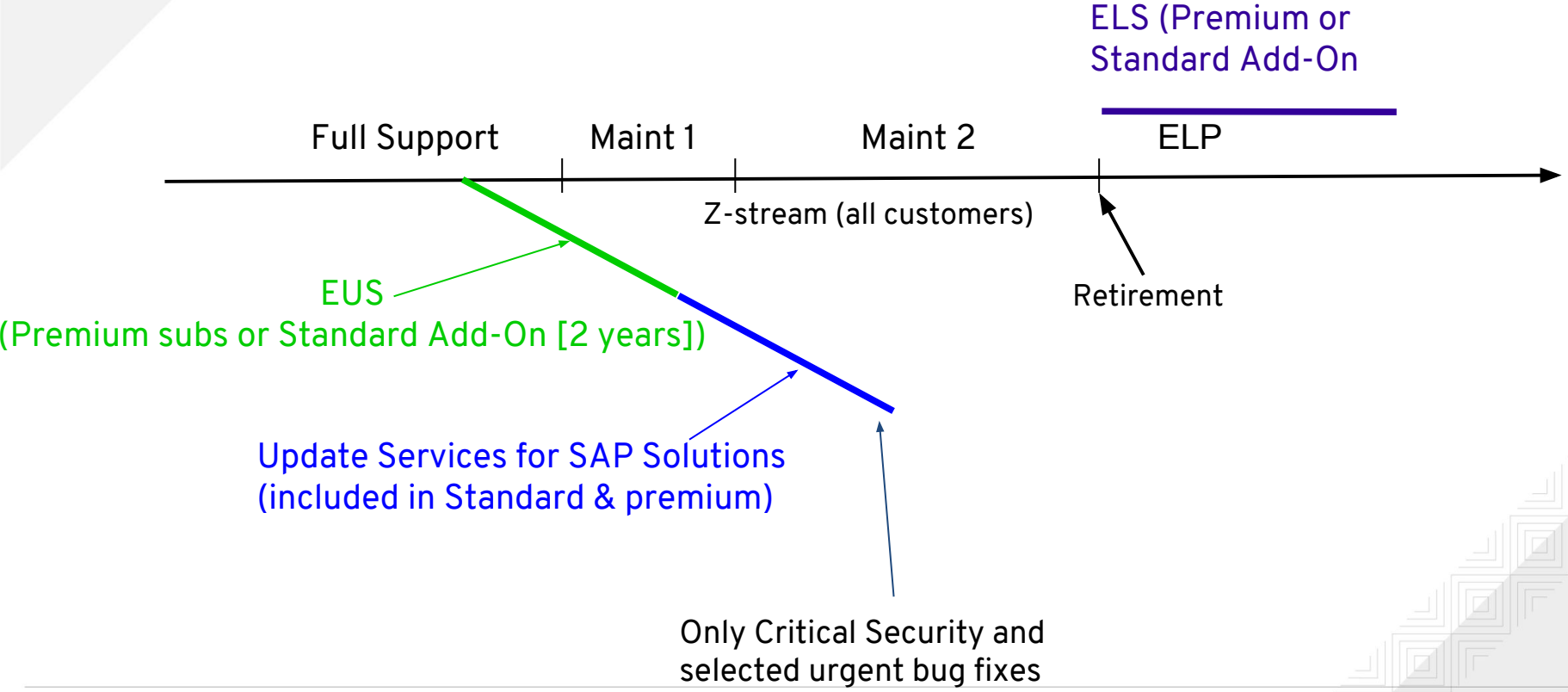
Certifications and Validations

- All SAP software is certified against RHEL major releases but HANA

- SAP validates RHEL minor releases for SAP HANA only
  - ready to use for entry-level Intel & Power LE servers
  - high-end Intel servers need to be certfied by OEM as appliance
  - Cloud vendors need t o certify as appliance
  - Up-to-date list of certified hardware configurations

- OEM Vendor Offerings
  - Vendors selling appliances built on Red Hat Enterprise Linux
  - Offer scale-out and scale-up configurations
  - Support SAP Business Suite powered by SAP HANA and S4HANA
  - Single Point of Contact for Support

Z-Stream, EUS and E4S



The Basics

RHEL for SAP Solutions

Red Hat Enterprise Linux for SAP Solutions

- RHEL for SAP HANA, S/4 HANA, and Business Apps workloads
- High Availability
- Smart Management for lifecycle management
- Red Hat Insights for proactive optimization
- 4 Y Update Services for SAP Solutions
- Integrated support process
- SAP specific contents (resource agents, tuned profiles, …)

RED HAT® VIRTUALIZATION

vmware vSphere

SAP certified Server Hardware

HUAWEI, DELL, VCE, Hewlett Packard Enterprise, cisco, FUJITSU, IBM, NEC, Bull atos technologies, Power Systems, HITACHI, Lenovo

SLA choices:

- Premium (7X24 production)
- Standard (5X12 non prod)

Per “socket pair” stackable models:

- 2 sockets **or** 2 virtual machines

Virtual Datacenter model

- 2 sockets/Hypervisor
- Unlimited guests

IBM Power:

- IFL SKU: 1 IFL, 4 LPARs.
- Linux-only SKU: 15 virtual entitlements / 2-sockets

https://www.redhat.com/de/resources/red-hat-enterprise-linux-sap-solutions-technology-overview

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Collaborative Support

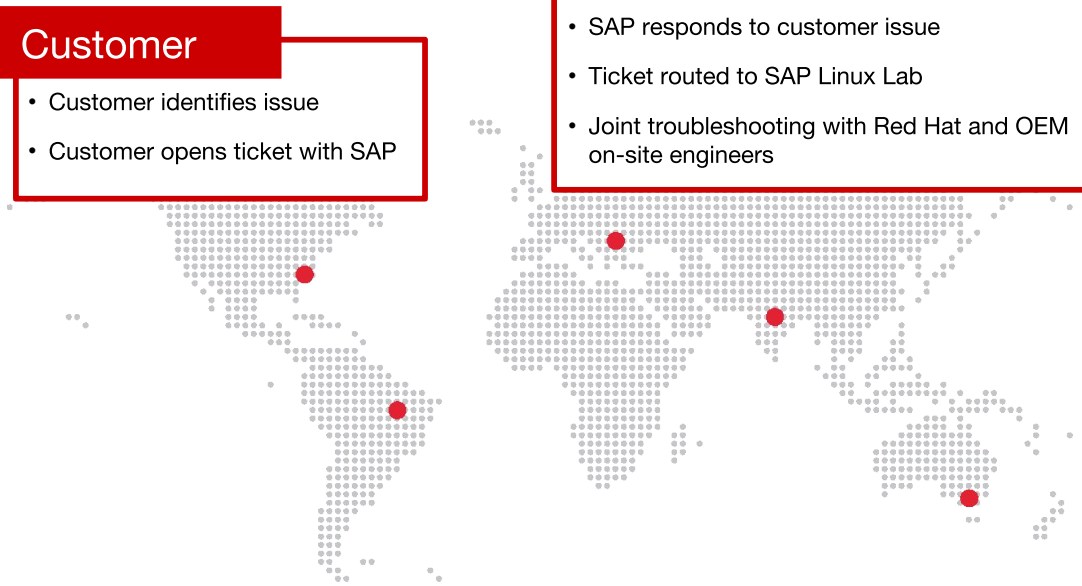
Integrated ticketing system—Customer has single support interface

Customer

- Customer identifies issue
- Customer opens ticket with SAP

SAP

- SAP responds to customer issue
- Ticket routed to SAP Linux Lab
- Joint troubleshooting with Red Hat and OEM on-site engineers



Red Hat and IBM

- Red Hat SAP technical account managers
- Red Hat Global support services engaged via SAP global backbone
- Specialty Based Routing (SBR) model ensures SMEs work the issue
- Collaborates with SAP, OEM, and customer
- Escalates bugs to engineering

SAP Specific Contents of “RHEL for SAP Solutions”

	RHEL for SAP Solutions	
RPM/Channel	**RHEL for SAP Applications**	**RHEL for SAP HANA**
compat-locales-sap	x	
compat-sap-c++	x	x
resource-agents-sap	x	
resource-agents-sap-hana		x
tuned-profiles-sap	x	
tuned-profiles-sap-hana		x
sapconf	x	
vhostmd/vm-dump-metrics	x	

SAP Specific Contents of “RHEL for SAP Solutions”

Red Hat Enterprise Linux for SAP HANA Child Channel

- Contains additional packages essential to HANA deployment:
  - compat-sap-c++-5.so
  - compat-sap-c++-6.so
  - Tuned profiles for bare-metal and virtualization-based deployments
  - Resource agents for managing SAP HANA instance in pacemaker cluster environment
  - Scalable file system (XFS) add-on (RHEL 6)
- Repository name on Red Hat Enterprise Linux Server 7: rhel-sap-hana-for-rhel-7-server-rpms

SAP Specific Contents of “RHEL for SAP Solutions”

compat-sap-c++-5 Package

- Additional runtime environment for GCC 5.x
  - Must install to run SAP HANA 2.0 on Red Hat Enterprise Linux 7
  - Minimum version: compat-sap-c++-5-5.3.1-10
- Reasons compat-sap-c++-5.so is required:
  - SAP HANA 2.0 releases built with different GCC compiler version from default included in Red Hat Enterprise Linux 7
  - Provides GCC 5.x libstdc++ rebuilt for Red Hat Enterprise Linux 7
- Installed as /opt/rh/SAP/lib64/compat-sap-c++-5.so

Reference

- SAP note 2338763 - Linux: Running SAP applications compiled with GCC 5.x

SAP Specific Contents of “RHEL for SAP Solutions”

compat-sap-c++-6 Package

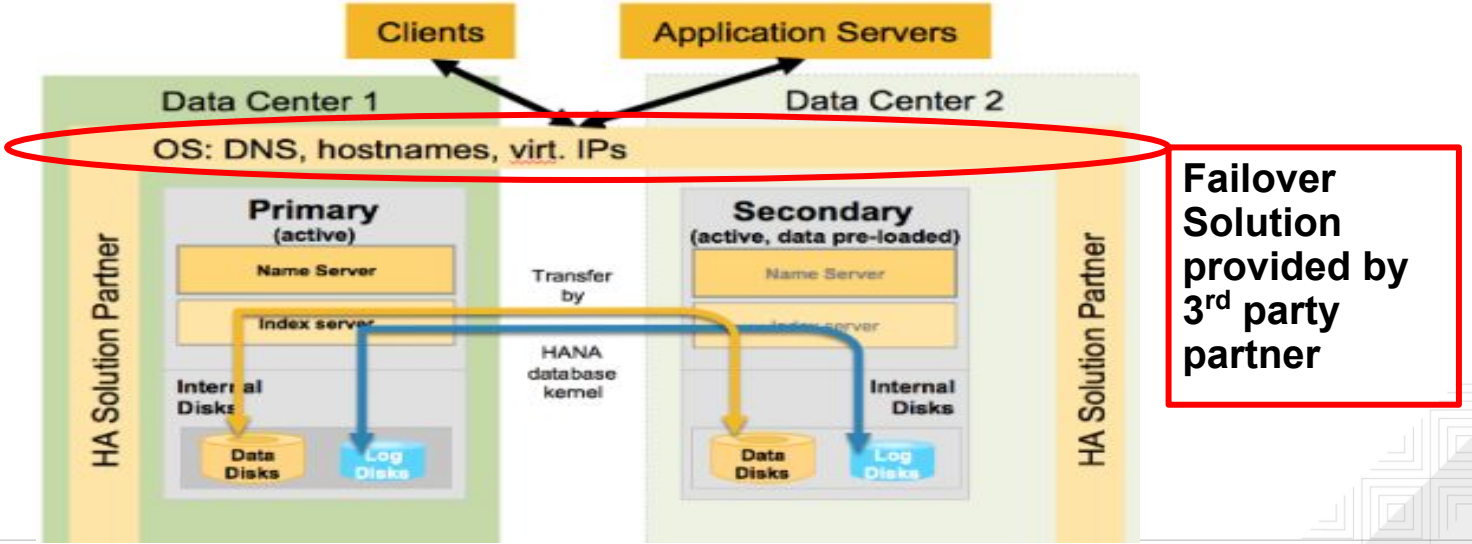
- Additional runtime environment for GCC 6.x
  - Must install to run SAP HANA 2.0 SP 2 on Red Hat Enterprise Linux 7
  - Minimum version: compat-sap-c++-6-6.3.1-1
- Reasons compat-sap-c++-6.so is required:
  - SAP HANA 2.0 SP3 releases built with different GCC compiler version from default included in Red Hat Enterprise Linux 7
  - Provides GCC 6.x libstdc++ rebuilt for Red Hat Enterprise Linux 7
- Installed as /opt/rh/SAP/lib64/compat-sap-c++-6.so

Reference

- SAP note 2455582 - Linux: Running SAP applications compiled with GCC 6.x

SAP HANA System Replication

- SAP HANA replicates all data to a secondary SAP HANA system (standard SAP HANA feature).
- Data is constantly pre-loaded on the secondary system to minimize recovery time objective (RTO)



Automated SAP HANA System Replication
Supported Configuration (as of Oct. 2017)

Currently the following scenarios and parameters are supported:

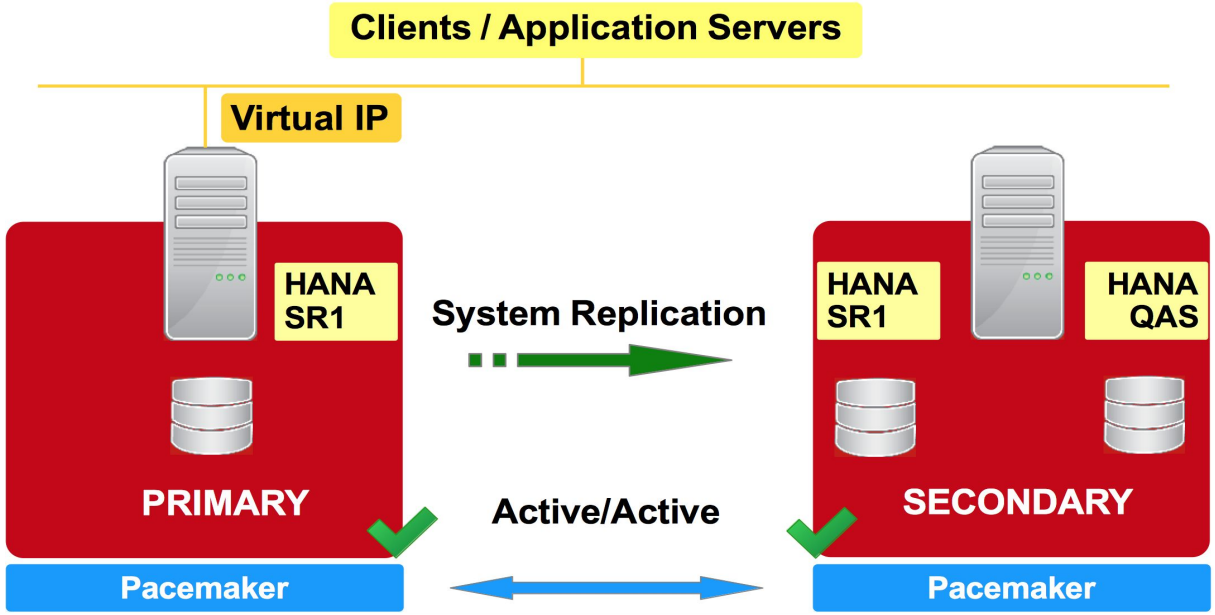
- Two-node clusters only
- SAP HANA Scale-Up (single-box to single-box) System Replication only
- Support HANA 1.0 and HANA 2.0 *
- Support "Multiple Components One Database" (MCOD) and "Multiple Database Containers" (MDC) *
- "Multiple Components One System" (MCOS) is only supported if all databases running on the hosts are replicated and the replication is always to the same secondary node *
- Currently only support x86_64. Power LE (ppc64le) support will be available in RHEL 7.4

* : Please check minimum version required on https://access.redhat.com/articles/3004101

Automated SAP HANA System Replication

Supported Configuration - continued

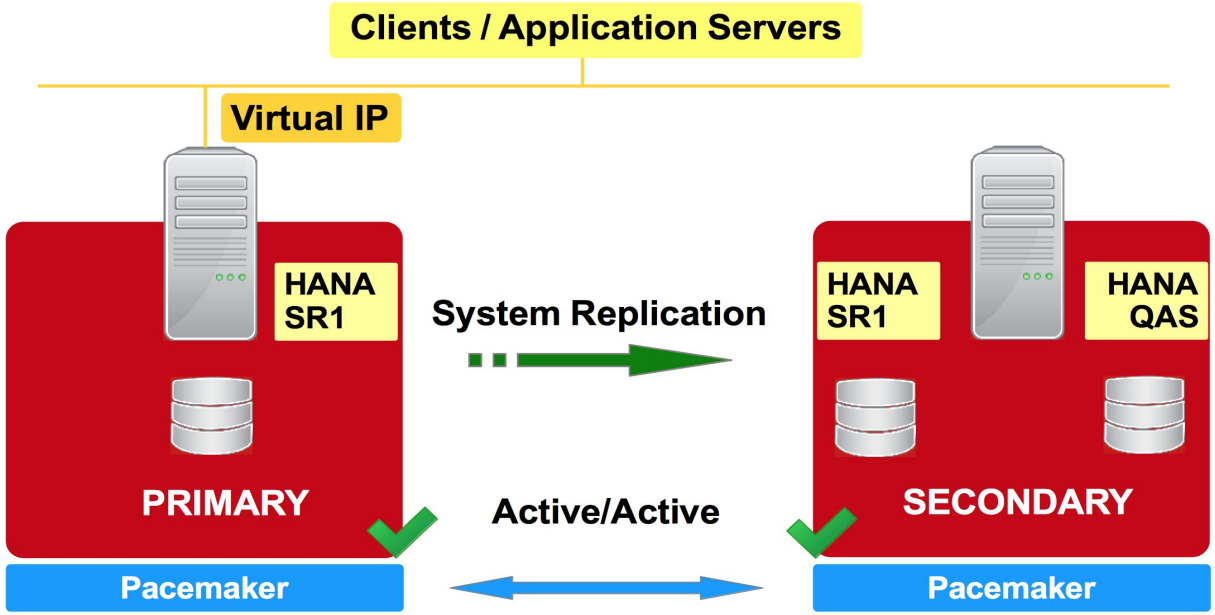
- Active-Active Read-Enabled: in HANA 2.0, the secondary instance can take Read-Only inquiries
- Support a second virtual IP on the secondary node



Automated SAP HANA System Replication

Supported Configuration - continued

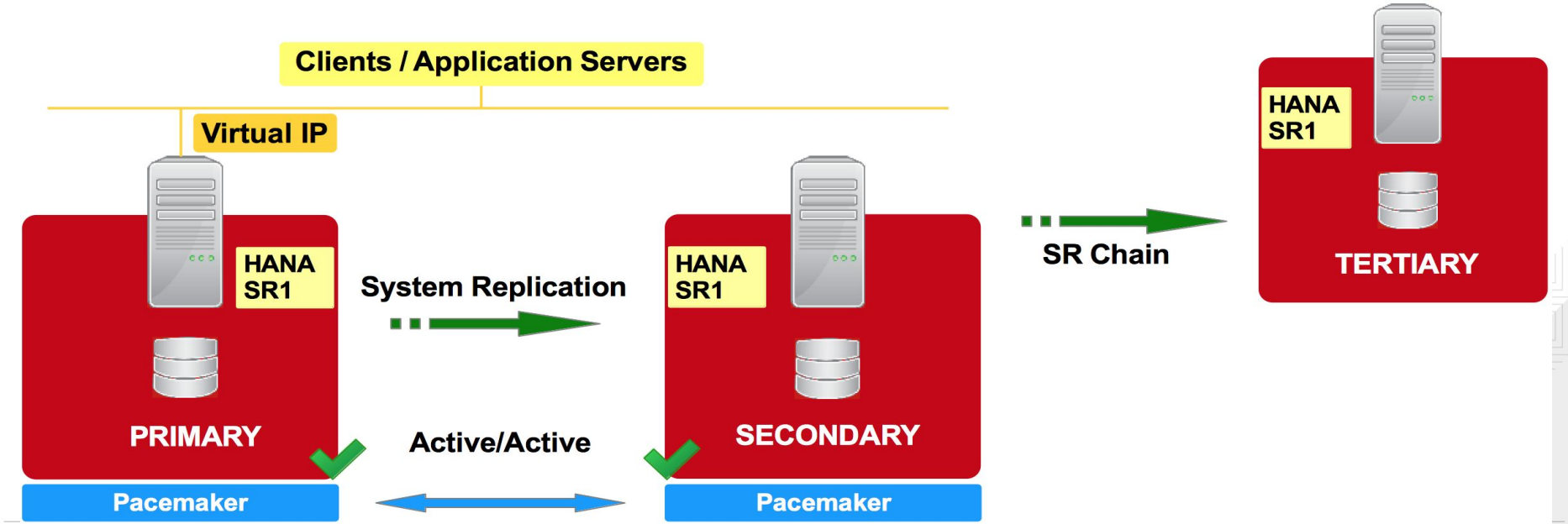
- Support a QA/Test instance running on the secondary node (Cost-Optimized)
- QA/Test instance will be shutdown first during failover



Automated SAP HANA System Replication

Supported Configuration - continued

- "Multi-tier System Replication"/"replication chains" are possible
- tertiary site is not managed by the cluster



Automated SAP HANA System Replication

Supported Configuration - continued

- Using Full Sync Replication is possible *
- If the cluster nodes are installed in different data centers or data center areas, the environment must match both the requirements defined by SAP for HANA System Replication (see chapter "4.2 Distance between data centers" in the SAP "How to Perform System Replication for SAP HANA" guide) and also the RHEL HA add-on stretch cluster requirements, specifically the network latencies between the nodes and the recommended maximum distance

* : Please check details on https://access.redhat.com/articles/3004101

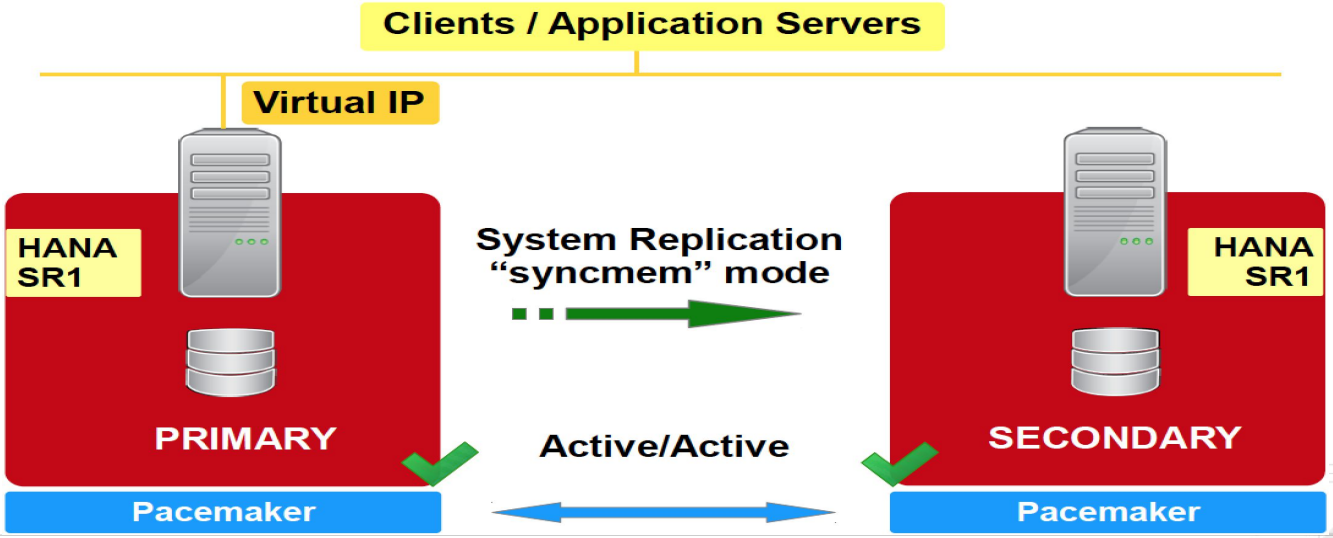
Automated SAP HANA System Replication

Resource Agents

- SAP HANA
  - Manages pre-configured SAP HANA System Replication environment
- SAP HANA Topology
  - Gathers information about the current status of SAP HANA System Replication
- Both are bundled in resource-agents-sap-hana rpm
- Configuration Guide
  - https://access.redhat.com/articles/3004101

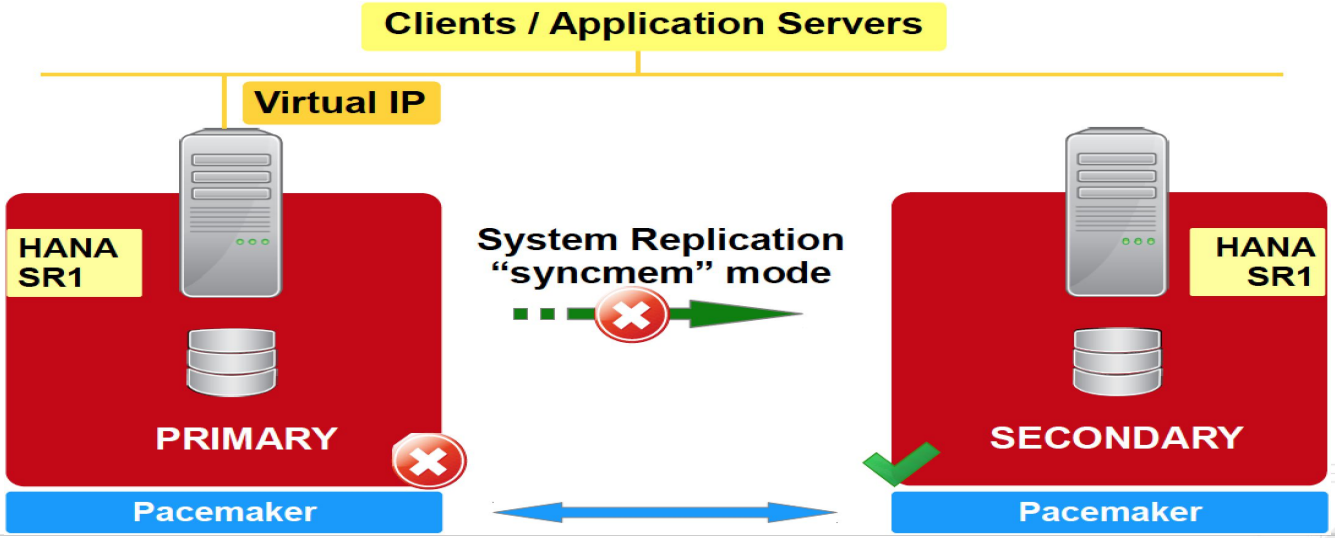
Failover Scenario – System Replication on Pacemaker

- System Replication modes: sync, [syncmem], async
- PREFER_SITE_TAKEOVER = True
- AUTOMATED_REGISTER = False
- No shared storage



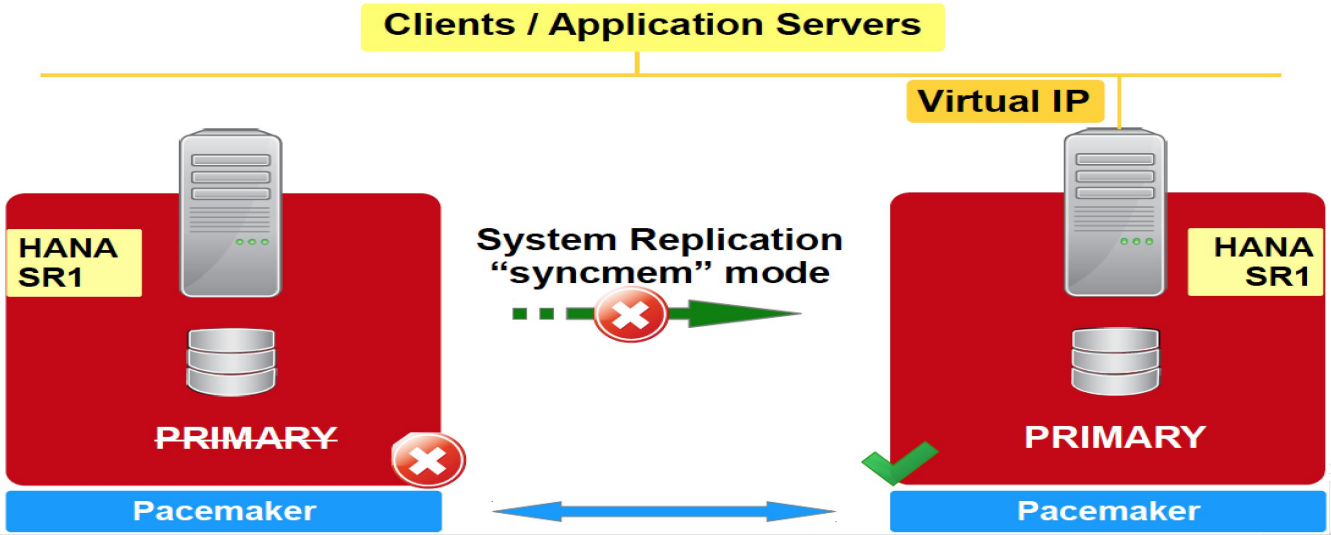
Failover Scenario – Primary Node Down

- Primary node down
- System Replication interrupted
- Pacemaker cluster fence the primary node



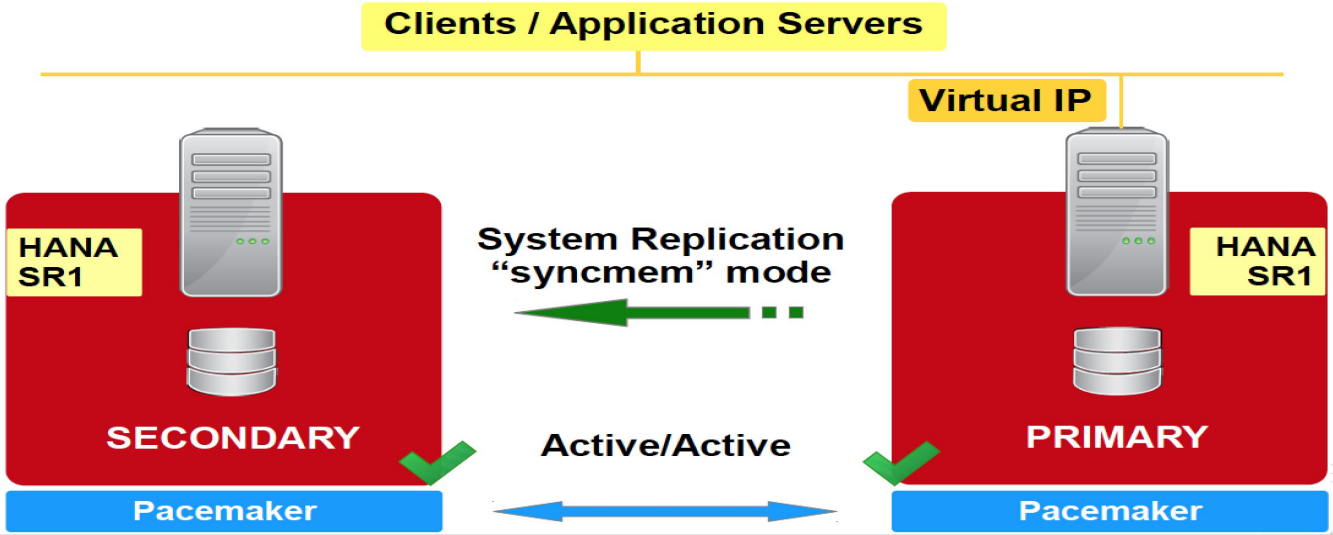
Failover Scenario – Secondary Node Take-Over

- Secondary becomes the new Primary
- Virtual IP binds to the new Primary node
- Previous Primary remains Primary, because “AUTOMATED_REGISTER = False”, and Administrator must decide if the setup failback or register the old Primary as the new secondary before HANA System Replication can start again



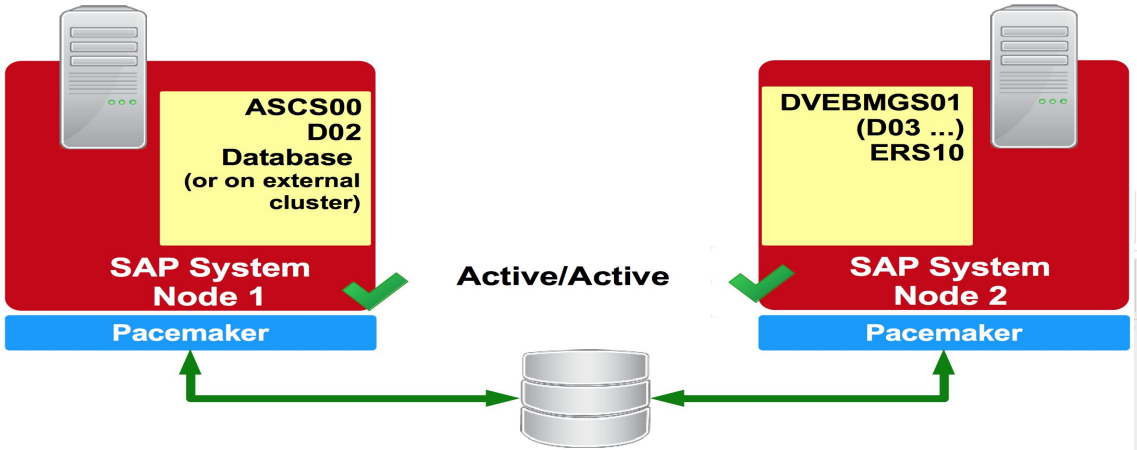
Failover Scenario – What if “AUTOMATED_REGISTER = True”

- Wait for “DUPLICATE_PRIMARY_TIMEOUT” timeout
- Former Primary registers as the new Secondary
- System Replication starts, in the opposite direction



High Availability for SAP Business Applications

- Pacemaker based cluster resource agents
- Support available in RHEL 7 and RHEL 6.5+
- Supports SAP NetWeaver based SAP Solutions (ERP (aka ECC), CRM, SRM, Solution Manager, Portal, ...)
- Supported Databases:
  - Oracle
  - IBM DB2 LUW
  - SAP MaxDB
  - SAP ASE
- HA inside VM's
  - RHEL KVM
  - Red Hat Virtualization
  - VMware ESX/ESXi

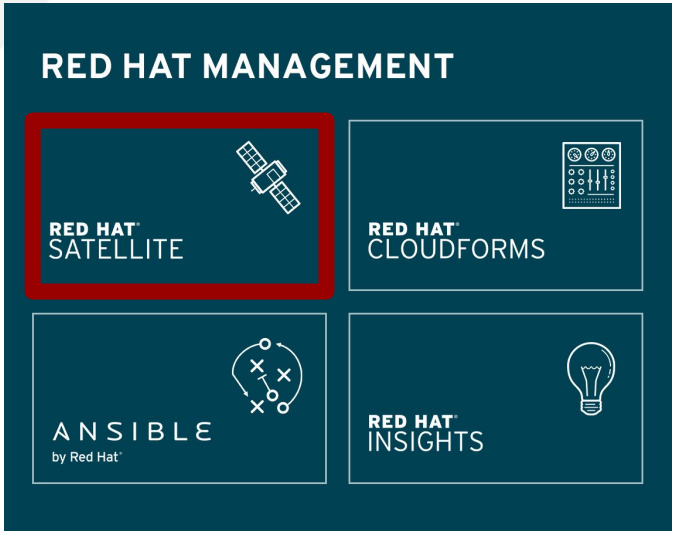


https://access.redhat.com/articles/3150081

Manageability

SAP Server management ... with automation

Satellite … the chassis frame



- Manage SAP System Lifecycle across Test/Dev, QA and Prod from a single UI
- Granular, consistent patching of dozens of systems with a single click

NOW INCLUDED

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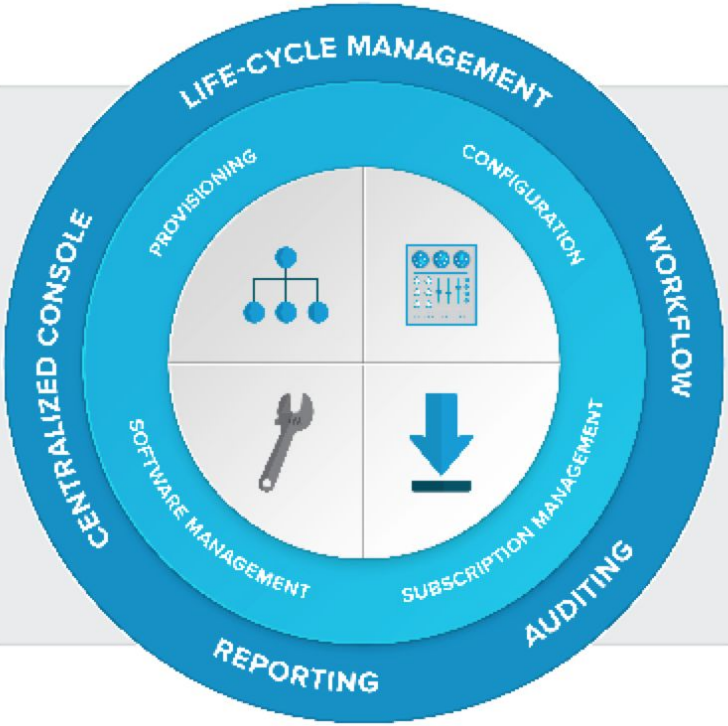
Smart Management



- Provides life-cycle management for Red Hat infrastructure
- Enables provisioning on bare metal, virtualized and cloud-based infrastructures
- Provides centralized configuration and drift management
- Simplifies management of content, including security errata
- Makes it easy to manage and track subscriptions

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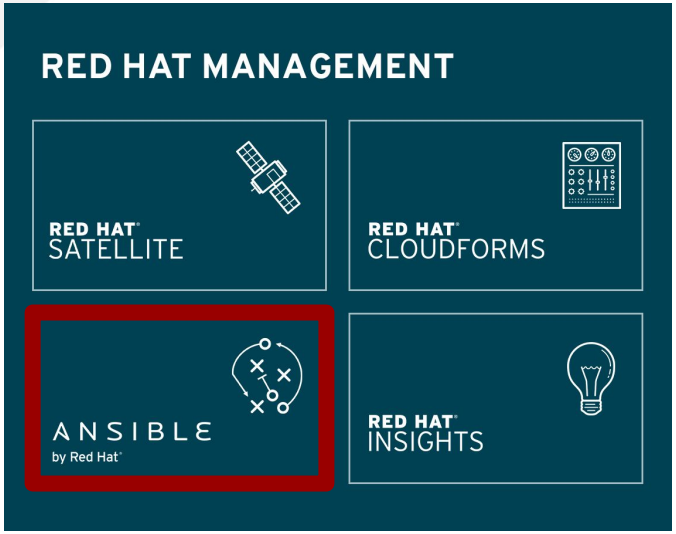
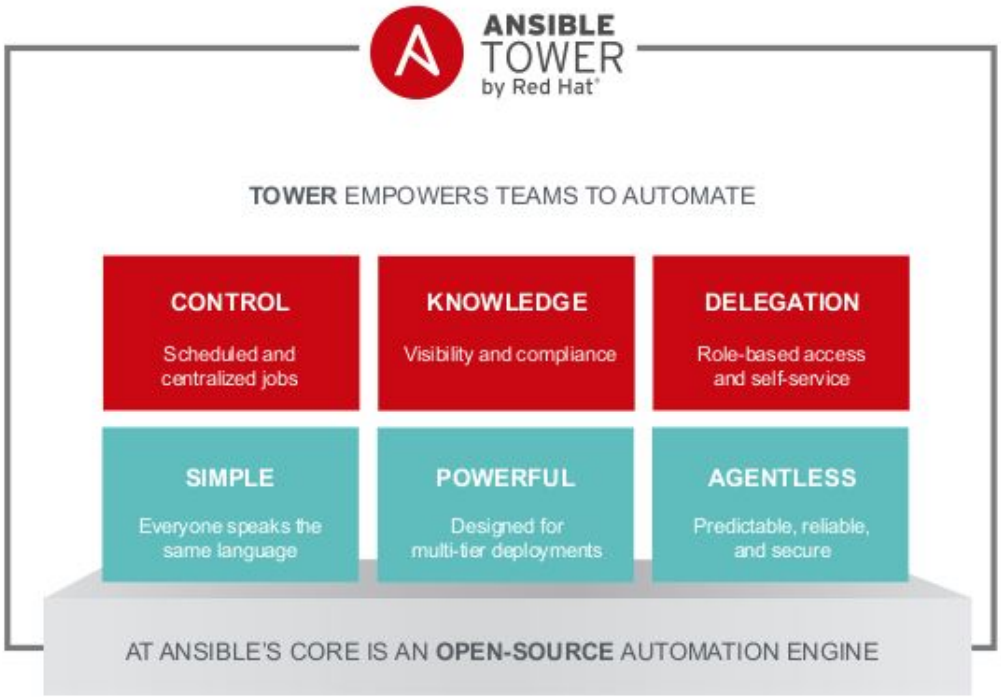
Ansible ... the engine



- Automated system provisioning using configuration management
- Set up a SAP (HANA) instance including best practices and tuning within less than 15 min.
- Orchestration enables faster deployment of changes into the production landscape.
- CI/CD and SOE for SAP HANA Infrastructure enables regular security updates in production environment, identical staging / production environments, replace of manual DR strategies
- Bare-Metal-as-a-Service
- Ansible Playbooks: reduce implementation time e.g. for 6 node HANA scale-out environment from 7 to 3 days

https://galaxy.ansible.com/mk-ansible-roles

Ansible - Powerful Automation Engine



SAP HANA standard installation process

- On Site construction
- Installation & Configuration
- Installation & Configuration
- Validation & Customization
- Maintenance & Updates

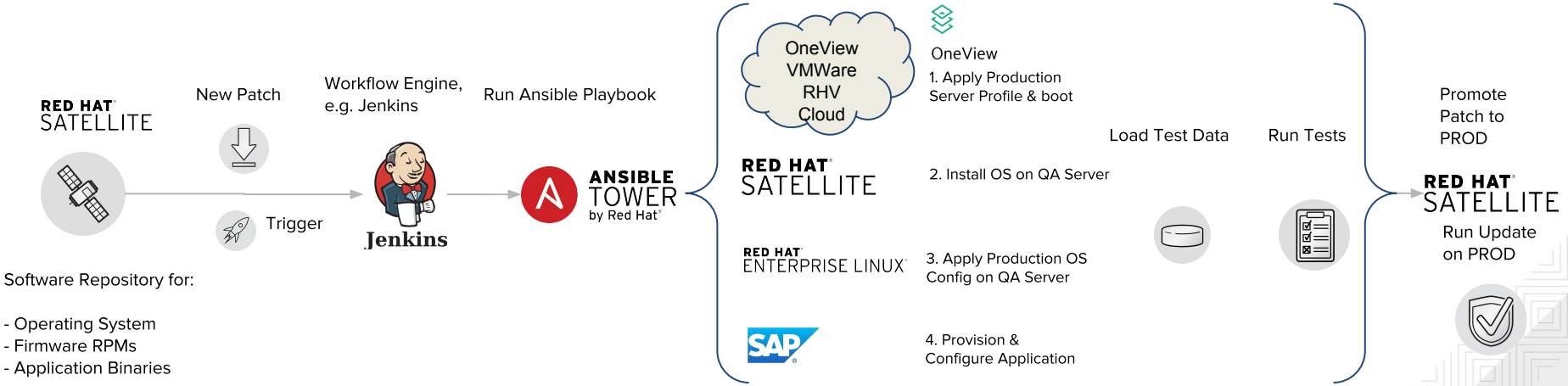
Individually for each server and environment!

SAP HANA optimized installation process

- On Site construction
- Installation & Configuration
- Installation & Configuration
- Validation & Customization
- Maintenance & Updates

Automation for the whole environment

Use Case: reduce risk of patching SAP landscapes



Ready to use ansible roles for automating your setups:

- https://access.redhat.com/articles/3050101
- https://galaxy.ansible.com/mk-ansible-roles

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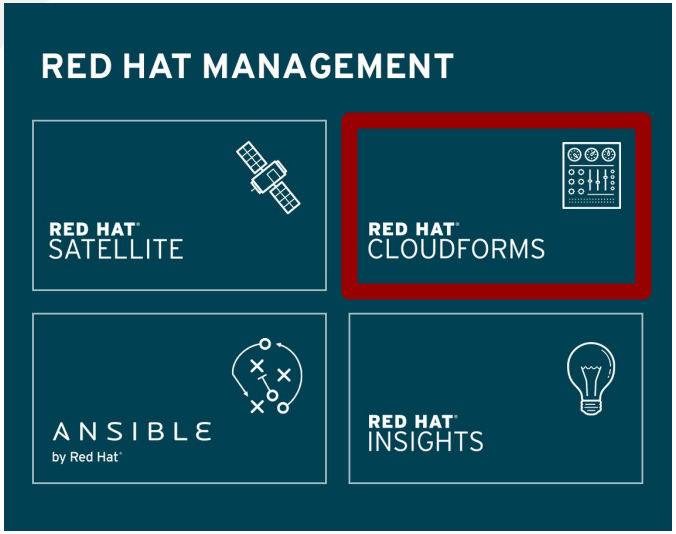
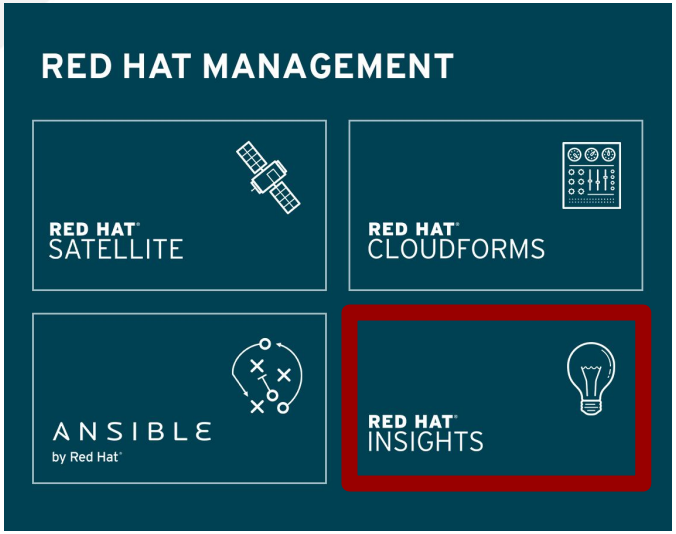
Cloudforms ... the dashboard



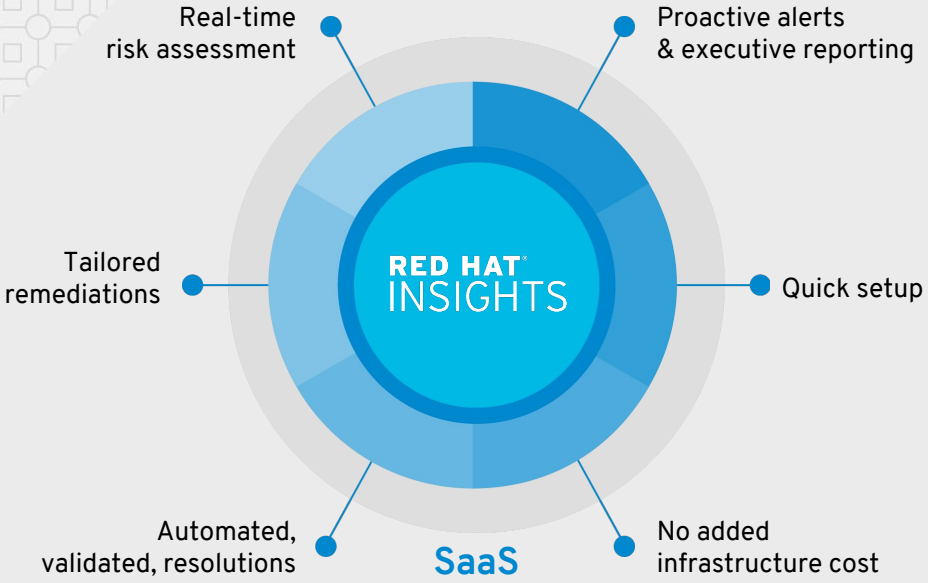
- Create a self-service catalog of standard SAP operations
- Automatically deploy workloads on-premise and in the cloud
- Seamless mgmt. of on-premise and cloud
- Migrate workload between on-premise / cloud
- DR scenarios from on-premise to Cloud
- Integrate with Billing solutions
- Resource Planning

Insights ... ground control



- In-depth analysis of the SAP infrastructure enables proactive management
- Mitigate risk / ensure compliance (e.g. configuration drifts)
- Increase stability and performance
- Continuous identification of new risks driven by unique industry data

RED HAT® INSIGHTS



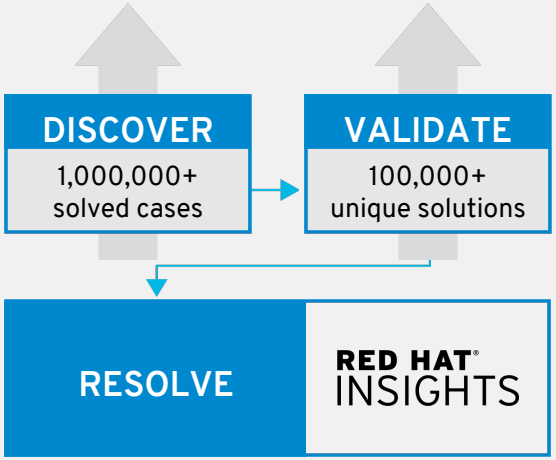
" As a global leader in healthcare information technology, security, and infrastructure intelligence are main priorities for us. Red Hat Insights enables us to be alerted to potential vulnerabilities across thousands of active systems and provide swift remediation."

The technology helps us prioritize risk resolution in our infrastructure.

– TIM ERDEL
Senior director,
Cerner Works Technology Improvement Center

Red Hat Insights - SAP Rules

- Continuous identification of new risks driven by unique industry data
- Put SAP Applications on a firm foundation
  - OS compatibility with SAP workloads
  - SAP related tuned profiles
  - Optimal OS configurations

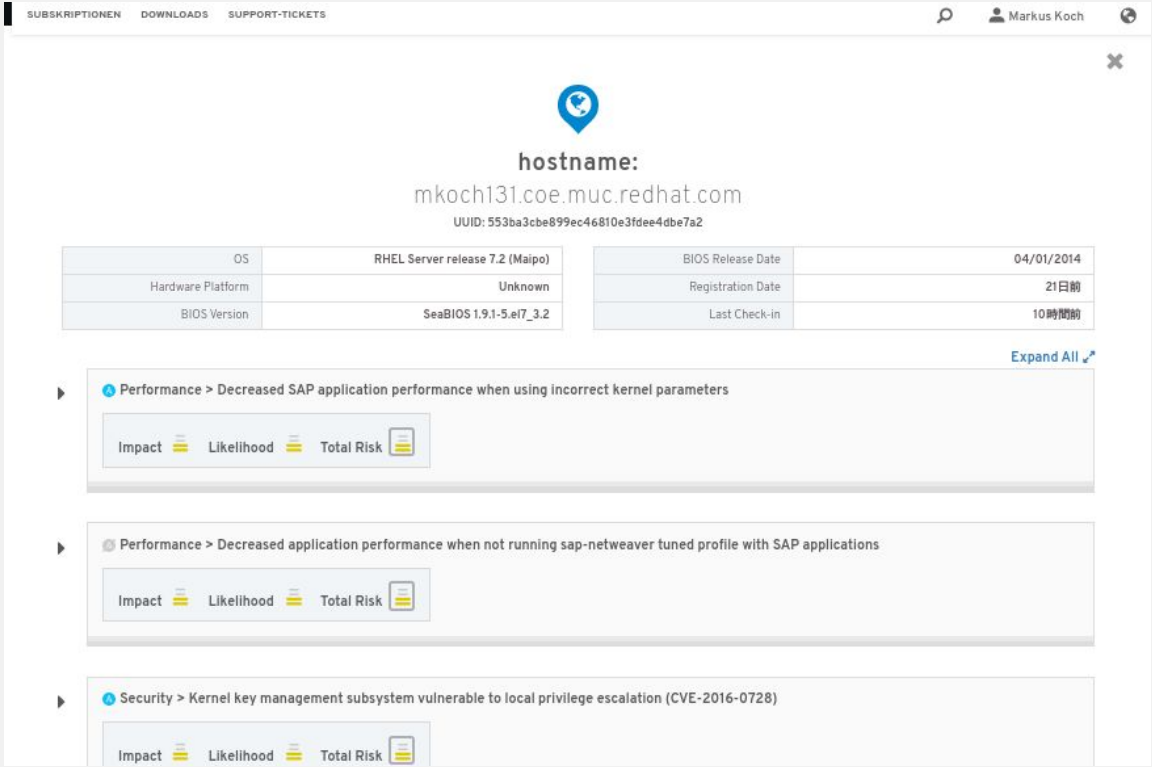


https://access.redhat.com/blogs/2184921/posts/2849871

PUT YOUR SAP APPLICATIONS ON A FIRM FOUNDATION

Rule	Description	Reference
SAP application incompatibility with installed RHEL Version	SAP applications will encounter compatibility errors when not running on RHEL for SAP.	Overview of Red Hat Enterprise Linux for SAP Business Applications subscription
Decreased application performance when not running sap-netweaver tuned profile with SAP applications	Enable the sap-netweaver tuned profile to optimize hosts for SAP applications	Overview of Red Hat Enterprise Linux for SAP Business Applications subscription
Decreased SAP application performance when using incorrect kernel parameters	When SAP's kernel parameter recommendations are not followed, SAP applications will experience decreased performance.	Red Hat Enterprise Linux 6.x: Installation and Upgrade - SAP Note
Decreased SAP application performance when file handler limits do not meet SAP requirements	Current file handle limits do not meet the application requirements as defined by SAP. This results in decreased SAP application performance.	Red Hat Enterprise Linux 7.x: Installation and Upgrade - SAP Note
Time discrepancy in SAP applications when not running ntp on SAP servers	SAP strongly recommends running an ntp service on systems running SAP	Red Hat Enterprise Linux 7.x: Installation and Upgrade - SAP Note
Database inconsistencies when UUIDD not running with SAP applications	SAP applications require UUIDD to be installed and running in order to prevent UUIDs from being reused in the application. When UUIDD is not running, database inconsistencies can occur.	Linux UUID solutions - SAP Note

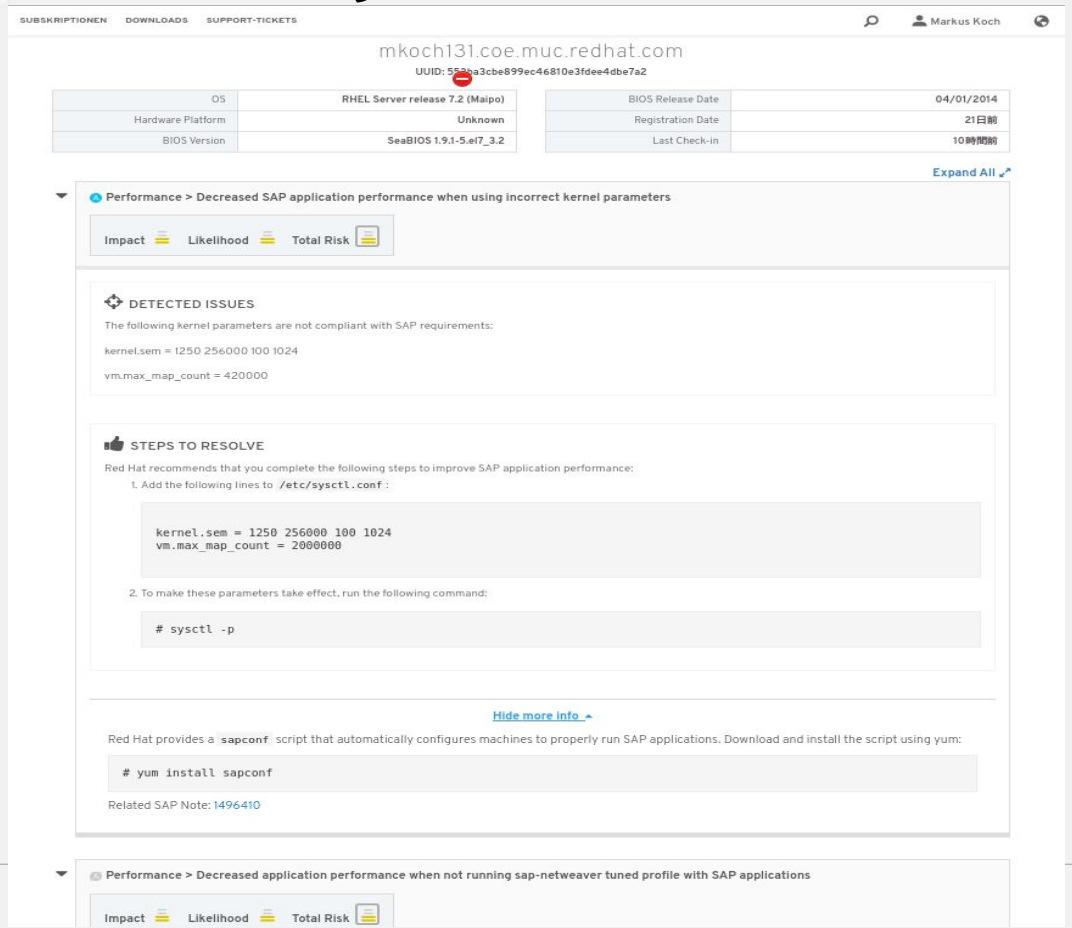
Red Hat Insights - SAP Rules



- early notifications of minimum releases of certain packages
- check of correct kernel parameters
- new findings in SAP development will automatically be messaged

Leads to higher stability, security and manageability of Red Hat based SAP landscapes

Red Hat Insights - SAP Rules



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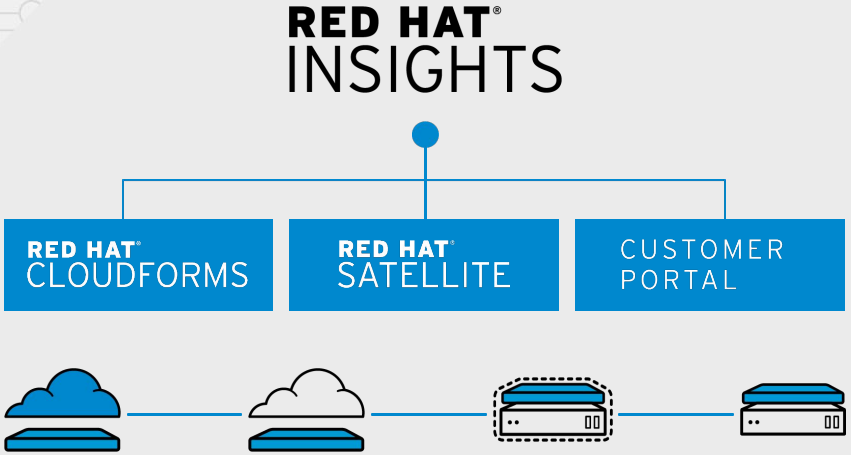
INTEGRATED INTO TOOLS YOU ALREADY USE



- Works on physical, virtual, cloud, and container-based workloads
- No new infrastructure to manage
- Integrated into Satellite 5.7, 6.1+, CloudForms 4.0+, and Red Hat Customer Portal
- API available for custom integration
- Ansible Tower integration enables playbooks generated in Red Hat Insights to be automatically imported into Ansible Tower

RED HAT® ENTERPRISE LINUX®
+ INSIGHTS DIFFERENTIATION

	RED HAT® INSIGHTS	CentOS	SUSE	ORACLE LINUX
Proactive analytics	✓			
Automated resolution	✓		✓	
Mature market	✓		✓	✓
Vendor supported	✓			✓
Integrated management	✓			✓

New price model - easy to consume

SKU	Red Hat Enterprise Linux For SAP Solutions on X86	
RH00763	RHEL for SAP Solutions, Premium	1 physical entitlement for a Server (2-sockets) OR 2 Virtual Instances
RH00764	RHEL or SAP Solutions, Standard	1 physical entitlement for a Server (2-sockets) OR 2 Virtual Instances
RH00767	RHEL for Virtual Datacenters for SAP Solutions, Premium	Unlimited Virtual Guests on a Server (2-sockets)
RH00768	RHEL for Virtual Datacenters for SAP Solutions, Standard	Unlimited Virtual Guests on a Server (2-sockets)

How SAP and Red Hat deliver better business outcomes

Your next project

1. Making HANA the digital core

2. Managing hybrid IT.
Your choice of where to deploy.

3. Gaining insights from a universe of connected devices

4. Unleashing the value of your enterprise data

Business Outcomes

- **Fastest Time to Value:**
  - Speed-up deployments
  - Achieve your SLAs: avoid errors and down-time, reduce TCO
  - Increase flexibility: provide hybrid cloud and self-service
- **Unleash the value in enterprise data:**
  - Integration between SAP and non-SAP solutions and sources: *make HANA the digital core*
  - Integrate your non-SAP data with SAP DataHub
- **Accelerate Innovation:**
  - Deliver faster with containers and micro services, streamline development, including extensions of SAP
  - faster access to infrastructure resources: hybrid cloud and self-service functionalities

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What to Subscribe

- Repos of software child channels
  - rhel-server-7
  - rhel-server-7-sap
  - rhel-server-7-sap-hana
  - rhel-server-7-ha
- Repos of Update Services for SAP Solutions
  - rhel-server-7-e4s
  - rhel-server-7-sap-e4s
  - rhel-server-7-sap-hana-e4s
  - rhel-server-7-ha-e4s

How to Subscribe

- Subscribe to the Update Services for SAP Solutions
  - How to subscribe the SAP HANA system to the Update Services for SAP Solutions?
    - https://access.redhat.com/solutions/3075991
  - How to subscribe SAP Applications system to the Update Services for SAP Solutions ?
    - https://access.redhat.com/solutions/3082471
- Subscribe to the software child channels
  - How to subscribe a RHEL 7 system to RHEL for SAP HANA child channel?
    - https://access.redhat.com/solutions/2334521
  - How to subscribe the system to RHEL for SAP child channel ?
    - https://access.redhat.com/solutions/1544043

Support Resources

Single-Host Mode Installation Guide

- SAP Note 2009879 - SAP HANA Guidelines for Red Hat Enterprise Linux (RHEL) Operating System

Multiple-Host Mode Installation Guide

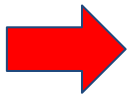
- SAP HANA Server Installation and Update Guide

Storage Requirements

- SAP HANA TDI - Storage Requirements

Other documentation (SAP HANA Technical Operations Guide, SAP HANA Admin Guide, etc.)

- SAP HANA Platform (Core) – SAP Help Portal Page

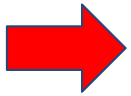


Read the documentation before starting a SAP HANA deployment. The documentation contains information pertaining to supportability. The installation guides are updated frequently, so it is a good idea to check for the latest version before starting a HANA installation.

Support Resources

SAP Notes

- SAP Note 2235581 - SAP HANA: Supported Operating Systems
- SAP Note 2009879 - SAP HANA Guidelines for RedHat Enterprise Linux (RHEL) Operating System
- SAP Note 2292690 - SAP HANA DB: Recommended OS settings for RHEL 7.2
- SAP Note 2247020 - SAP HANA DB: Recommended OS settings for RHEL 6.7
- SAP Note 2136965 - SAP HANA DB: Recommended OS settings for RHEL 6.6
- SAP Note 2013638 - SAP HANA DB: Recommended OS settings for RHEL 6.5
- SAP Note 2001528 - Linux: SAP HANA Database SPS 08 revision 80 (or higher) on RHEL 6 or SLES 11
- SAP Note 2228351 - Linux: SAP HANA Database SPS 11 revision 110 (or higher) on RHEL 6 or SLES 11
- SAP Note 1943937 - Hardware Configuration Check Tool - Central Note (contains the user guide for HWCCT)



The SAP Notes contain important information regarding configuration, upgrading, and supportability. These documents are updated frequently, so check for the latest version before a HANA installation, as well.

Support Resources

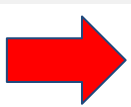
Red Hat Support Articles

- What's Red Hat Enterprise Linux for SAP HANA Subscription?
- Red Hat Enterprise Linux for SAP HANA: system update and supportability
- How to subscribe a RHEL 6 system to RHEL for SAP HANA child channel?
- How to subscribe a RHEL 7 system to RHEL for SAP HANA child channel?
- How to subscribe RHEL 6 SAP HANA system to Extended Update Support (EUS) channel?
- How to subscribe RHEL 7 SAP HANA system to Extended Update Support (EUS) channel?
- Why can I not install or start SAP HANA after a system upgrade?
- tmpwatch removing lock files needed by SAP HANA
- Why SAP HANA SP08 fails to install despite my server is a certified appliance and I have a valid RHEL for SAP HANA subscription?
- SAP HANA Multi host install fails with the message "LIBSSH2_ERROR_KEY_EXCHANGE_FAILURE, unable to exchange encryption keys"

Additional Technical Documents

The following landing page on SCN contains up-to-date technical documents for running SAP HANA on Red Hat Enterprise Linux

- Technical Resources for SAP HANA on Red Hat



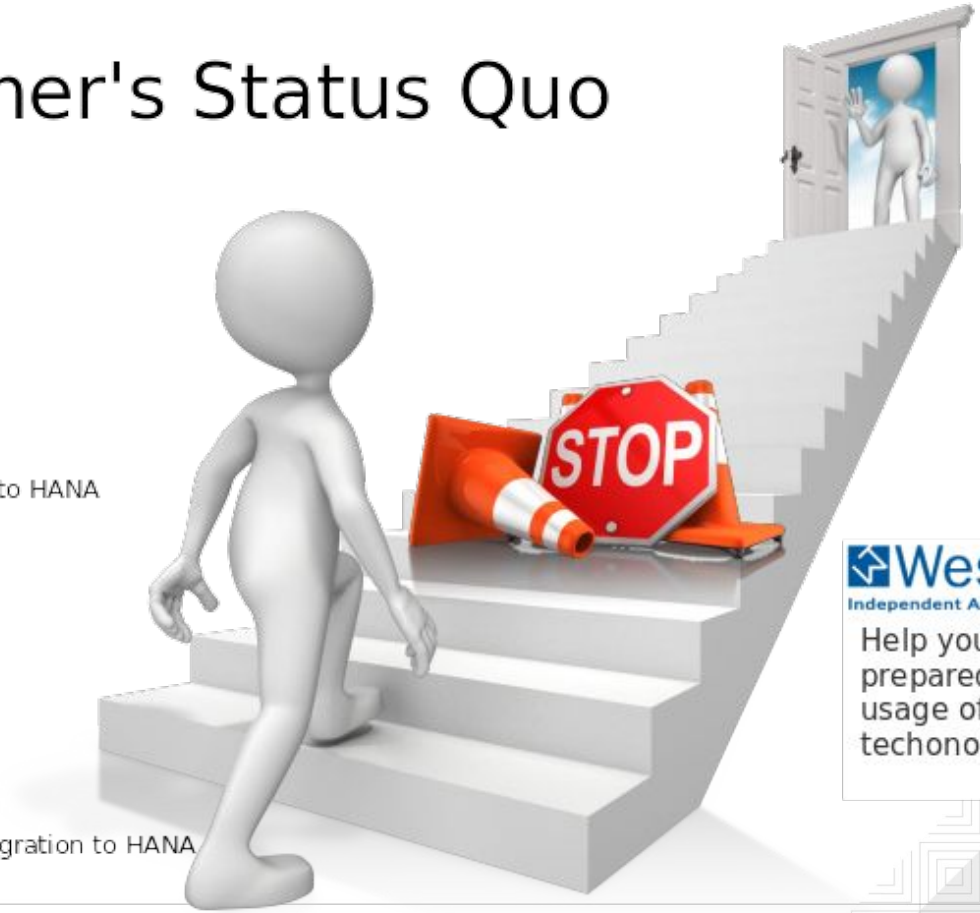
The Red Hat Knowledgebase articles contain important information regarding configuration, upgrade, and supportability. These documents are also updated frequently, so check for the latest version before a HANA installation, as well.

Advanced

(or the Digital Transformation)

Common Customer's Status Quo

- Processes
  - Self developed, non-standard
  - Not using current software state
  - No or little automation
- Data Quality
  - Low Quality, Redundant data
- Software
  - Old releases, not ready for migration to HANA
- Service Processes
  - No defined rules, No Monitoring
- Know How
  - None or not sufficient
- Lack of resources
- Budget
  - Not sufficient for modernisation or migration to HANA



West Trax
Independent Analyst and Advisor

Help you getting prepared for the usage of next-gen techonology

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Red Hat’s value proposition

- **Achieve your KPIs:**
  - faster time to value: speed-up deployments
  - increase flexibility: provide hybrid cloud and self-service functionalities
  - achieve your SLAs: avoid errors and downtime
  - reduce TCO

- **Unlock the value in enterprise data:**
  - Integration between non-SAP solutions and source: make HANA the digital core

- **Accelerate Innovation:**
  - Use containers and microservices to streamline application development and delivery of SAP extensions
  - faster access to infrastructure resources: provide hybrid cloud and self-service functionalities

- **Save Cost:**
  - Red Hat Enterprise Linux for SAP Solutions is less expensive than other solutions

Customer Success

- **Peavey Electronics**--built a new platform that provides mobile access to real-time information and reduces capital hardware costs by about US$100,000.
- **Mohawk Industries**--cut infrastructure costs while boosting performance and sales with Red Hat Enterprise Linux for SAP HANA and Red Hat Satellite
- **Molecular Health**--implemented a highly reliable and stable environment that runs long-term, computing-intensive workloads for cancer research

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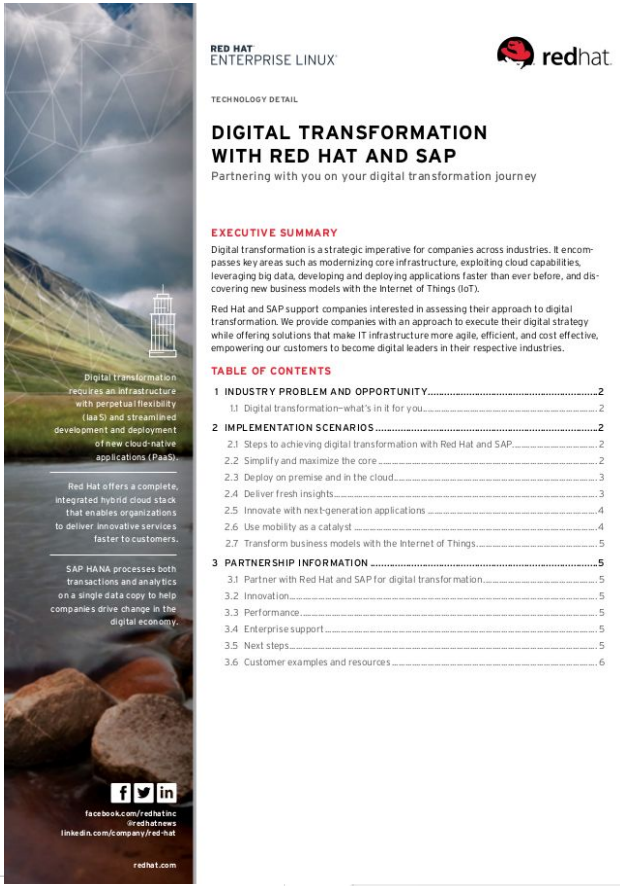
Resources

- **Overview of Red Hat Enterprise Linux for SAP Solutions subscription**
  - https://access.redhat.com/support/policy/updates/errata
- **Enablement**
  - SAP Webinars https://www.redhat-partner.com/webinar_trainings
- **Whitepapers**
  - Digital Transformation with SAP and Red Hat
  - SAP Integration with Red Hat JBoss solutions
  - SAP Infrastructure Automation
  - Forrester Report / Modernize the DC



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THANK YOU