



Rozwiązania SUSE® dla SAP

Ciągłość działania systemów SAP

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Pre-sales Engineer
SUSE



Wyzwania dla rozwiązań wysokiej dostępności



Osiągnięcie wysokiej dostępności wymaga troski o każdy element

Infrastruktura

Sprzęt

Oprogramowanie systemowe

Aplikacja

Czynnik ludzki



Prawo Murphy'iego jest uniwersalne

Czy są Państwo przygotowani na:

- Na awarię sprzętu
- Powódź
- Pożar
- Trzęsienie ziemi?

Czy mogą sobie pozwolić na przerwy w dostawie usług lub gorzej, utraty danych?

Ile Was kosztują przestoje?



Zabezpiecz swoje dane, obciążenia (workloads), usługi za pomocą rozwiązania, które jest:

- Łatwe w uruchomieniu, skonfigurowaniu i zarządzaniu
- Działa na wszystkich platformach sprzętowych i systemach wirtualizacyjnych
- Integruje się z posiadanym środowiskiem
- Jest przystępne cenowo
- Jest NIEZAWODNE

Dlaczego SUSE dla SAP?



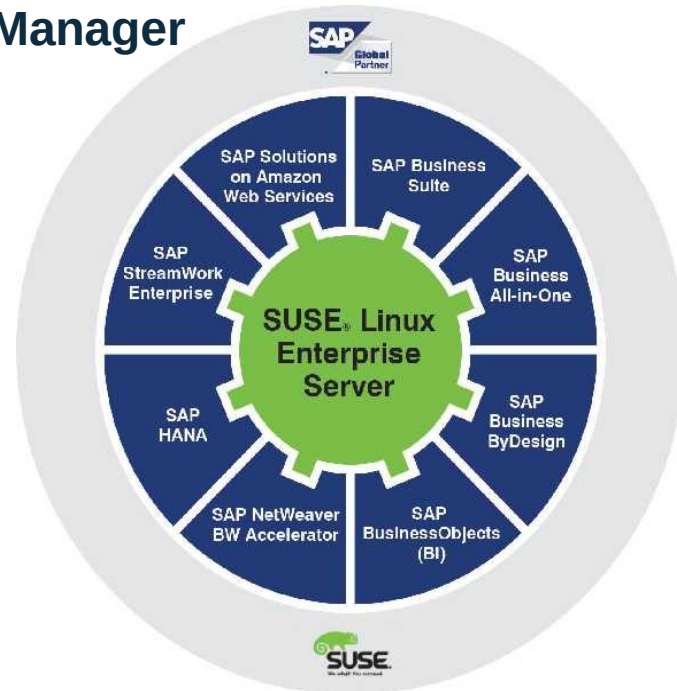
Bezkonkurencyjna współpraca powoduje, że SUSE staje się naturalnym i rozsądnym wyborem dla rozwiązań SAP

- SUSE Linux Enterprise jest wiodącą platformą dla rozwiązań SAP dla Linuksa
- Przeźroczyste wsparcie dla różnych systemów: SAP i SUSE
- Pierwszy i wiodący OS dla SAP HANA
- Platforma umożliwiająca uruchomienie SAP HANA Enterprise Cloud
- SUSE OpenStack Cloud zasila platformę SAP HANA Cloud
- Wspólna praca nad Cloud Foundry

Infrastruktura dla rozwiązań SAP SLES dla Aplikacji SAP

Zintegrowane Wsparcie 24x7 poprzez SAP Solution Manager Platforma Systemu Operacyjnego oraz Appliance

- SAP High Performance Analytic Appliance
- SAP NetWeaver BW Accelerator*
- SAP NetWeaver Enterprise Search*
- SAP StreamWork Enterprise Agent*
- SAP Business ByDesign*
- SAP Hana Enterprise Cloud*
- SAP's own ERP on HANA runs SUSE



SAP succes story:

<http://scn.sap.com/community/linux/blog/2015/10/09/sap-se-relies-on-suse-also-for-the-sap-hana-enterprise-cloud>

Wiodąca pozycja SUSE na rynku

70%

aplikacji SAP pod
systemem Linux

12000+

wspólnych
klientów
SAP/SUSE

100%

wdrożeń SAP
Business One

90%+

instalacji SAP
HANA

SUSE Sales and Business Partner Use Only



Rozsądny wybór dla rozwiązań SAP

- Rekomendowany i wspierany system operacyjny dla SAP HANA
- 18+ lat wspólnego rozwoju w ramach SAP LinuxLab
- SAP IT pracuje na SUSE Linux Enterprise (www.suse.com/success/stories/sap-se/)

SAP HANA Benchmarki Wydajności

Na 27 listopada 2018



80

40 – BW Edition for HANA
17 – BW AML
5 – Cloud
18 – BW EML (obsolete)



5

5 – BW Edition for HANA
0 – BW AML
0 – Cloud
0 – BW EML (obsolete)

BW Edition for HANA <https://www.sap.com/dmc/exp/2018-benchmark-directory/#/benchmarks/bwh>

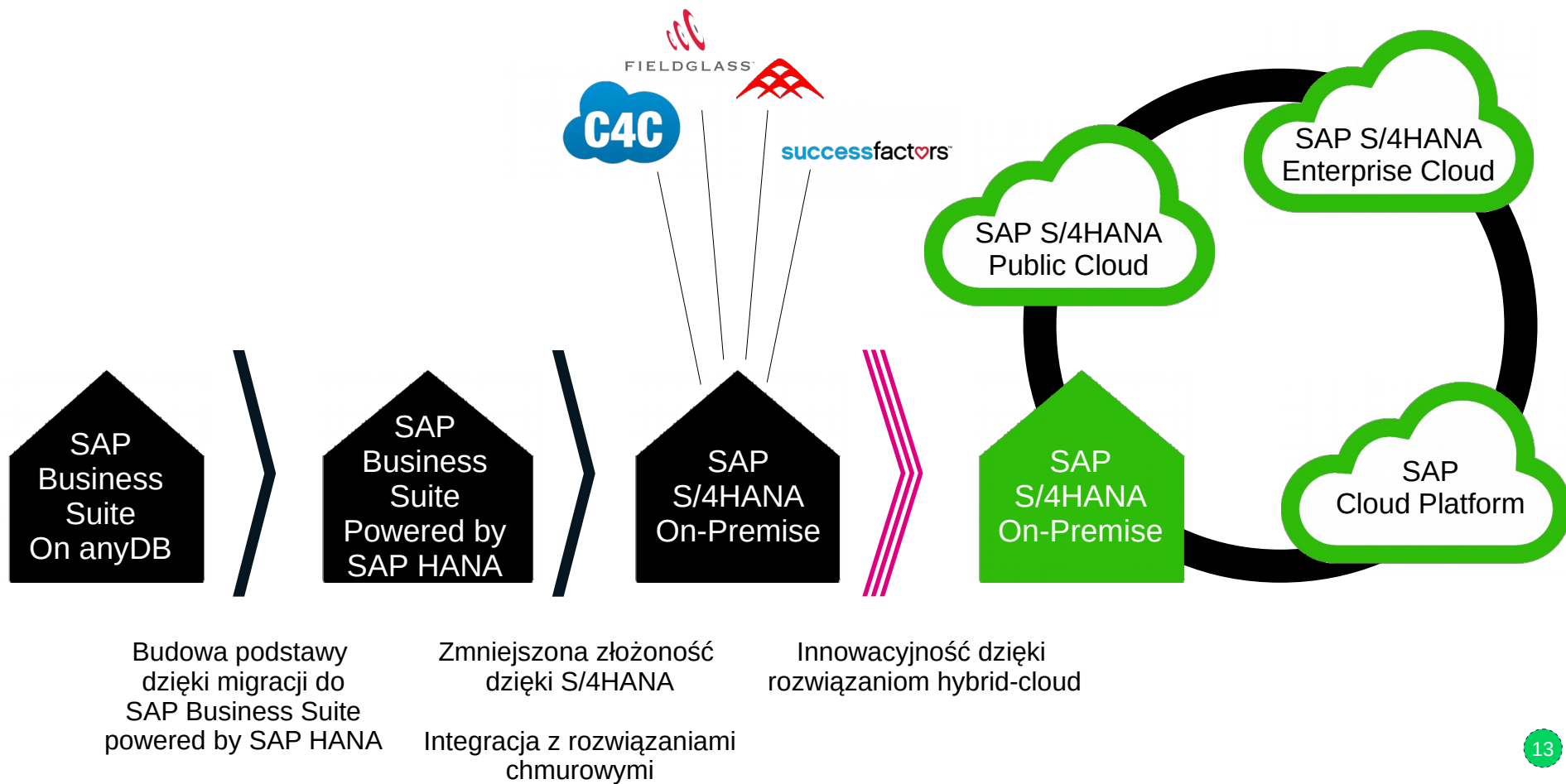
BW AML: <https://www.sap.com/dmc/exp/2018-benchmark-directory/#/benchmarks/bwaml>

Cloud: www.sap.com/about/benchmark/appbm/cloud.html

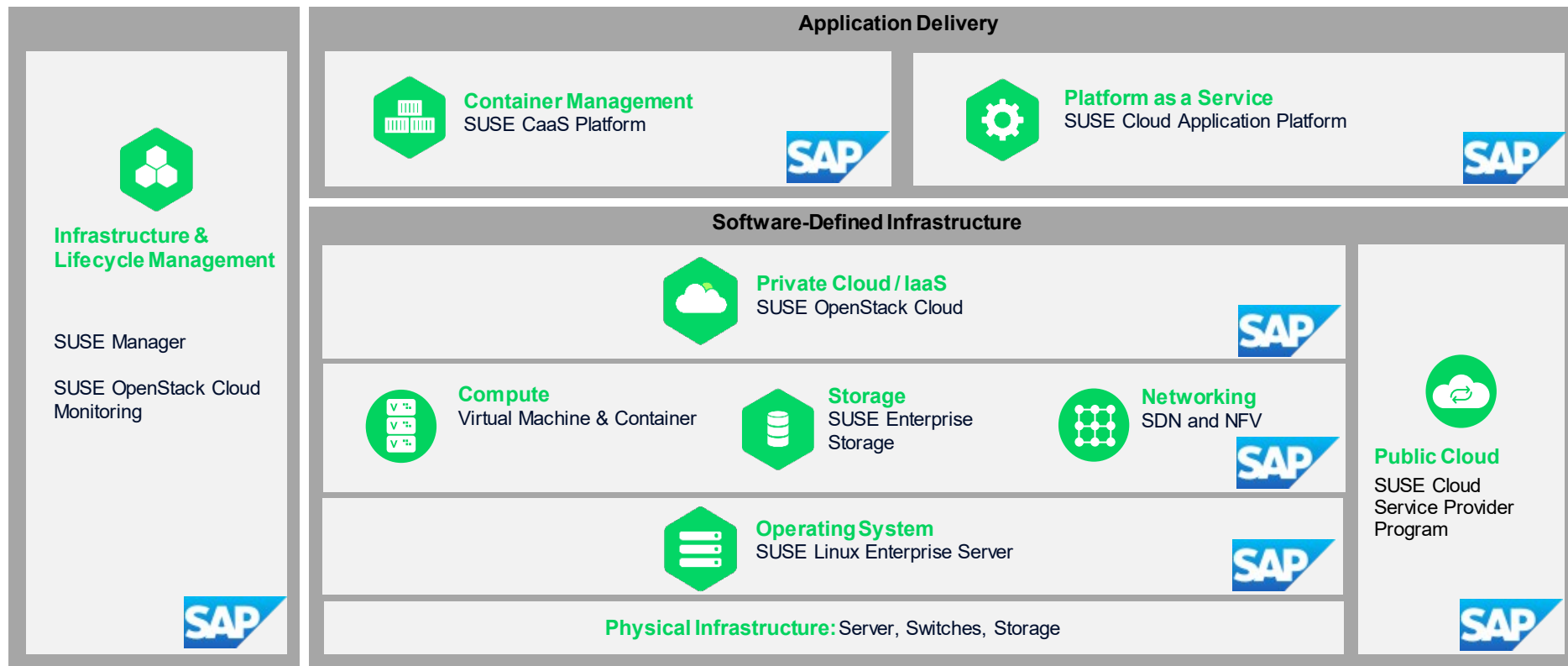
BW EML: www.sap.com/about/benchmark/appbm/netweaver.sap-bw-enhanced-mixed-load-bw-eml-standard-application-obsolete.html#sap-bw-enhanced-mixed-load-bw-eml-standard-application-obsolete

Dlaczego warto wybrać nasze rozwiązania?

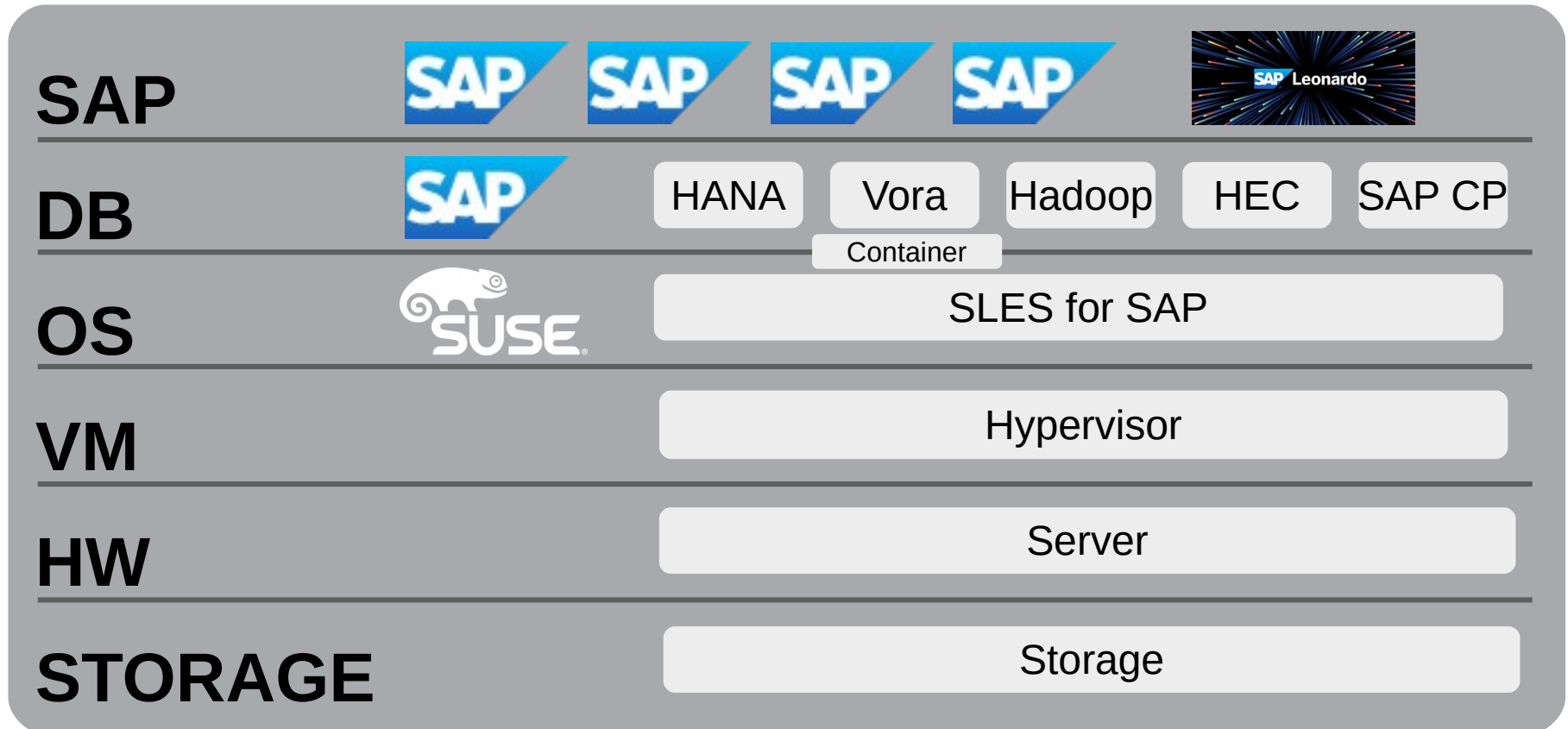
Transformacja Środowiska SAP



Infrastruktura Zdefiniowana Programowo oraz Dostarczanie Aplikacji według SUSE

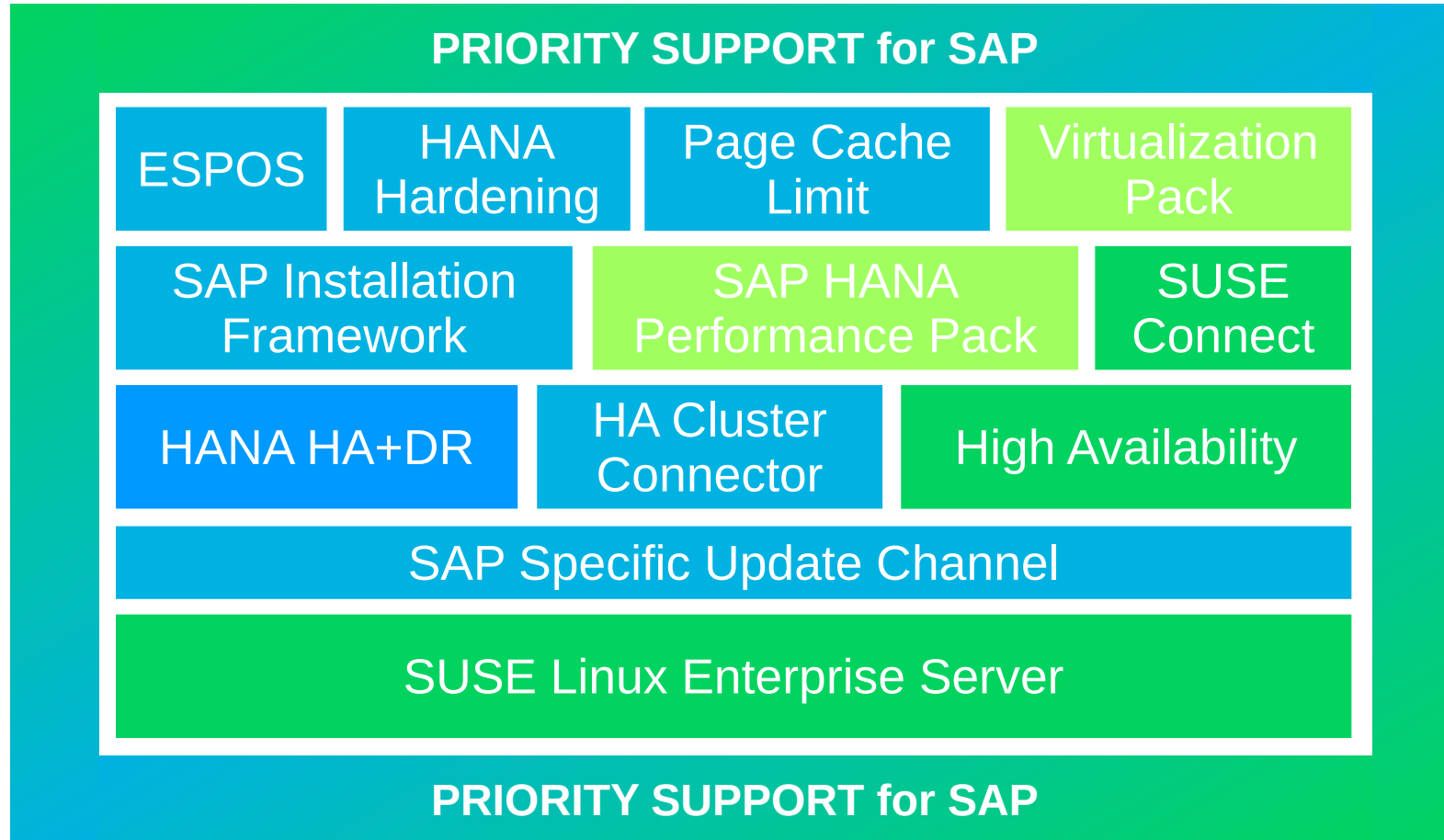


SAP Hybrid Cloud with HANA Stack

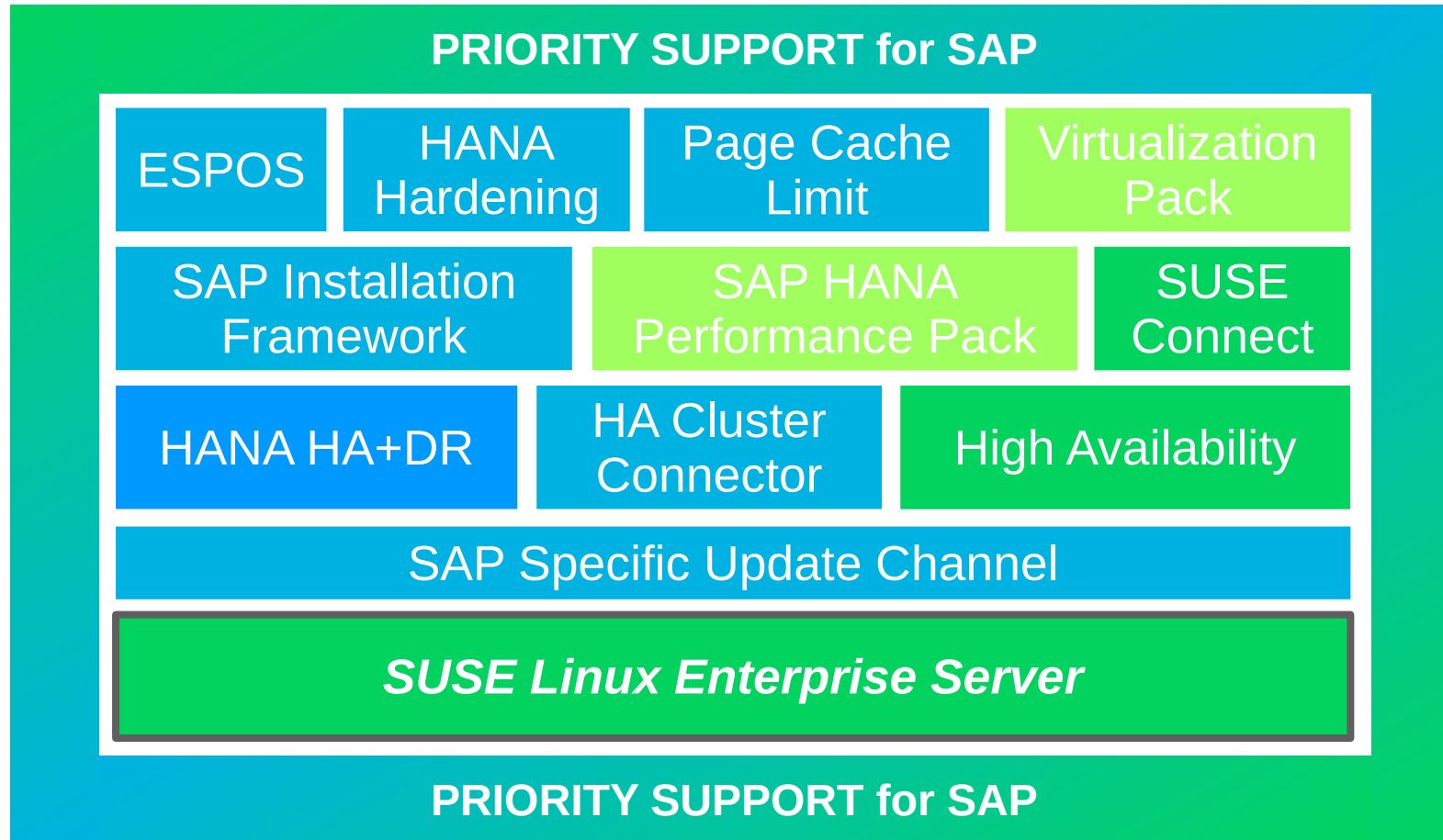


SUSE Linux Enterprise Server for SAP Applications

SLES for SAP Applications

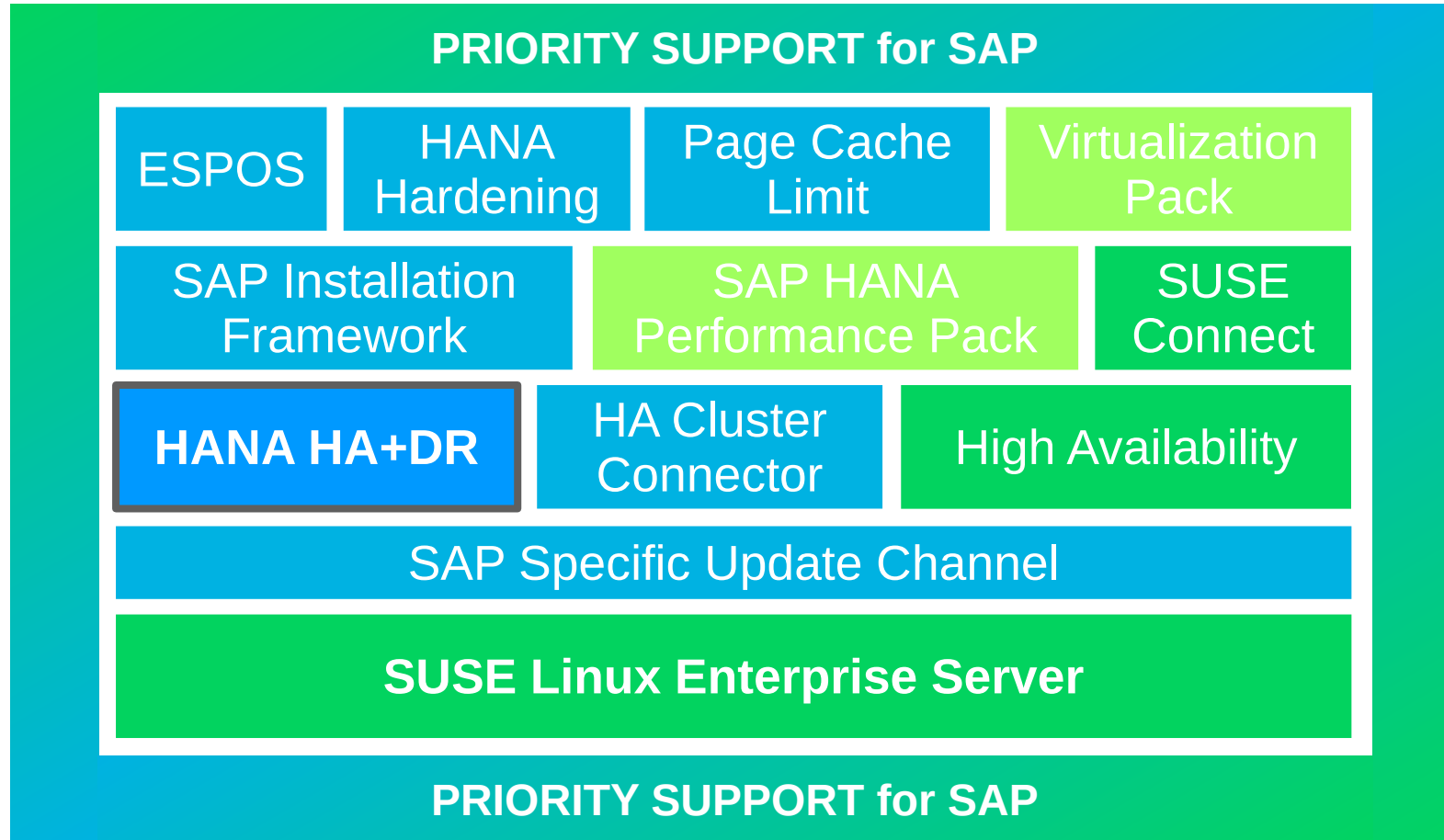


SLES for SAP Applications

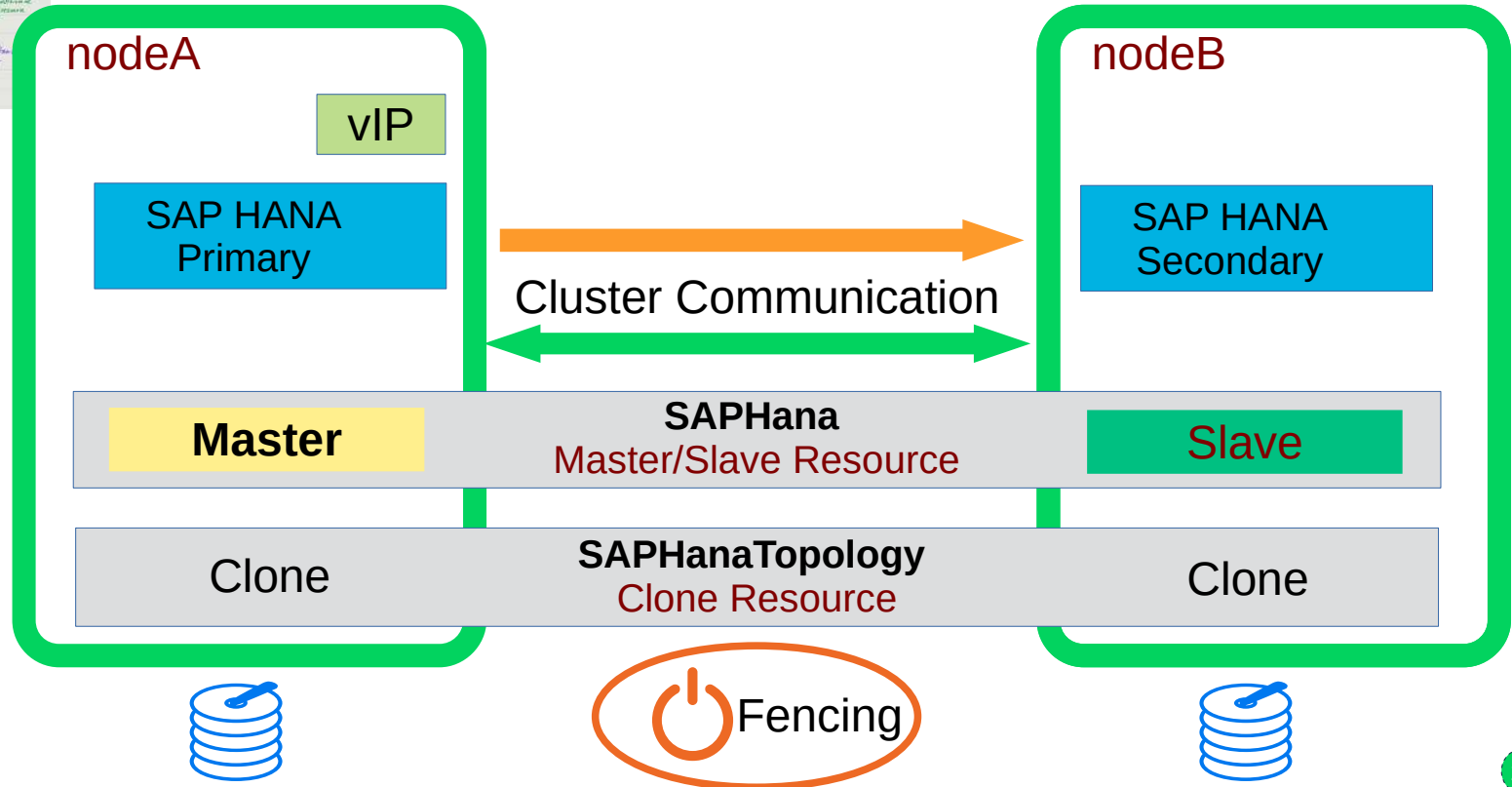
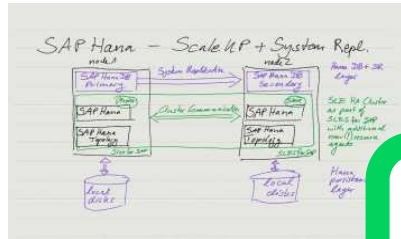


- SAP Development Reference Platform
- Certified
- Optimized
- SAP preferred Appliance Platform
- SAP Priority Support

SLES for SAP Applications



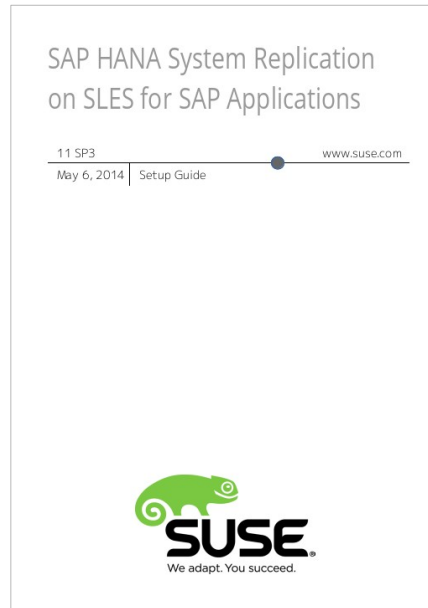
SUSE High Availability for HANA System Replication



Towards Zero Downtime

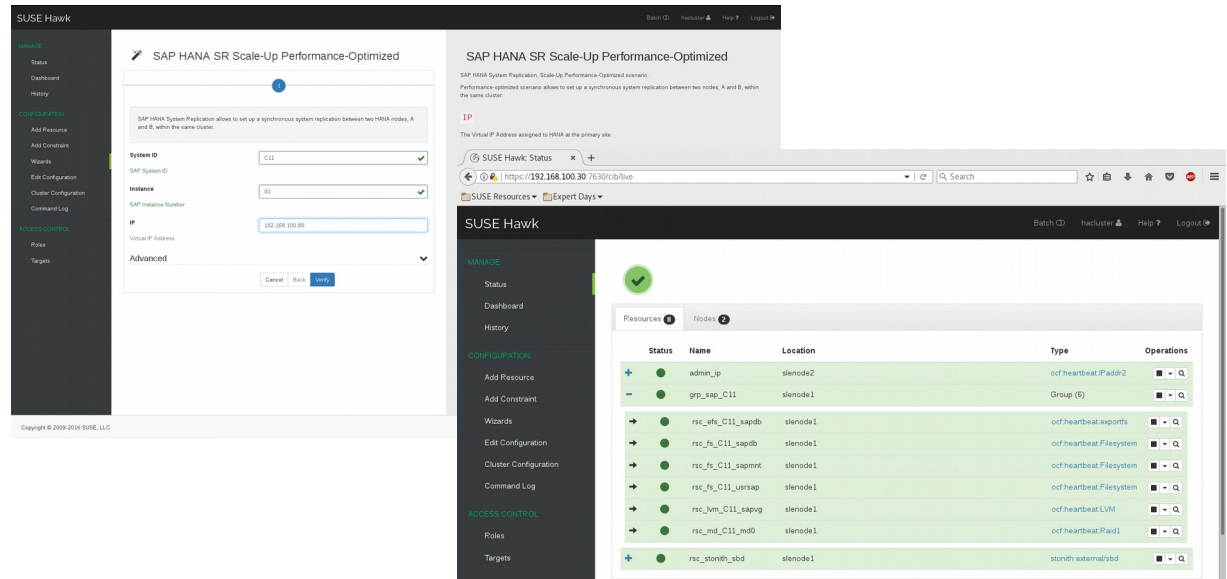
SUSE High Availability for HANA System Replication

Setup Guide

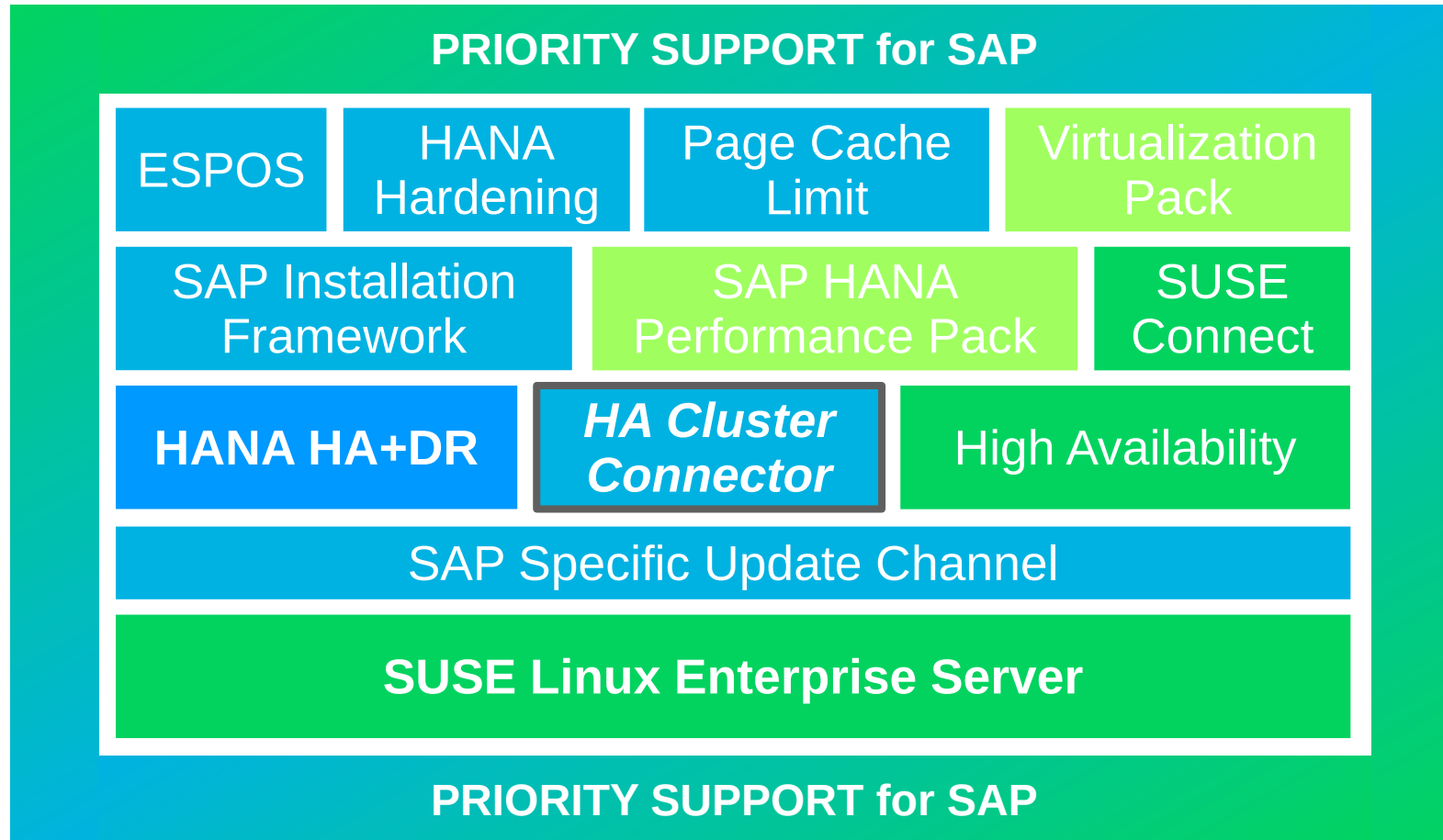


and

SAPHanaSR Setup Wizard



SLES for SAP Applications



Towards Zero Downtime

SAP Enqueue Replication with SUSE HA Extension

SAP on SUSE Linux Enterprise

SAP NetWeaver on SUSE Linux Enterprise Server with High Availability - Enqueue Replication Server and sap_suse_cluster_connector Integration

11 SP2

October 17, 2012

Best Practice

www.suse.com

SAP® Certified
Integration with SAP NetWeaver®



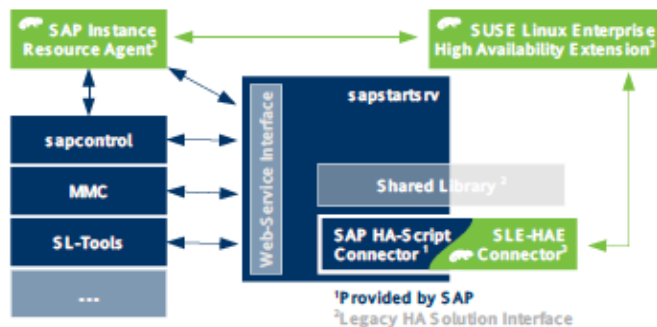
<http://scn.sap.com/community/linux/blog/2014/03/26/sap-netweaver-high-availability-cluster-730-certification>

agent expects a standard SAP installation and therefore needs fewer parameters to configure. The monitor operation of the resource agent can test the availability of the database by using SAP tools (R3trans or jdbconnect). This ensures that the database is really accessible for the SAP system.

3.3.3 The SAP SUSE cluster connector

The integration of the HA cluster through the SAP control framework using the `sap_suse_cluster_connector` is of special interest. "One of the classical problems running SAP instances in a highly available environment is that if a SAP administrator changes the status (start/stop) of a SAP instance without using the interfaces provided by the cluster software then the cluster framework will detect that as an error status and will bring the SAP instance into the old status by either starting or stopping the SAP instance. This can result in very dangerous situations, if the cluster changes the status of a SAP instance during some SAP maintenance tasks. The solution is that the central component SAPSTARTSRV, which controls SAP instances since SAP Kernel versions 6.4, will be enabled to communicate the state change (start/stop) to the cluster software." (SAP SDN article "How to Connect SAPSTARTSRV and Cluster Frameworks using the Components `saphascriptco.so` and `SAP_Vendor_Cluster_Connector`" <http://scn.sap.com/docs/DOC-28875>).

Figure 3.4 Cluster Integration with SAP Control Framework

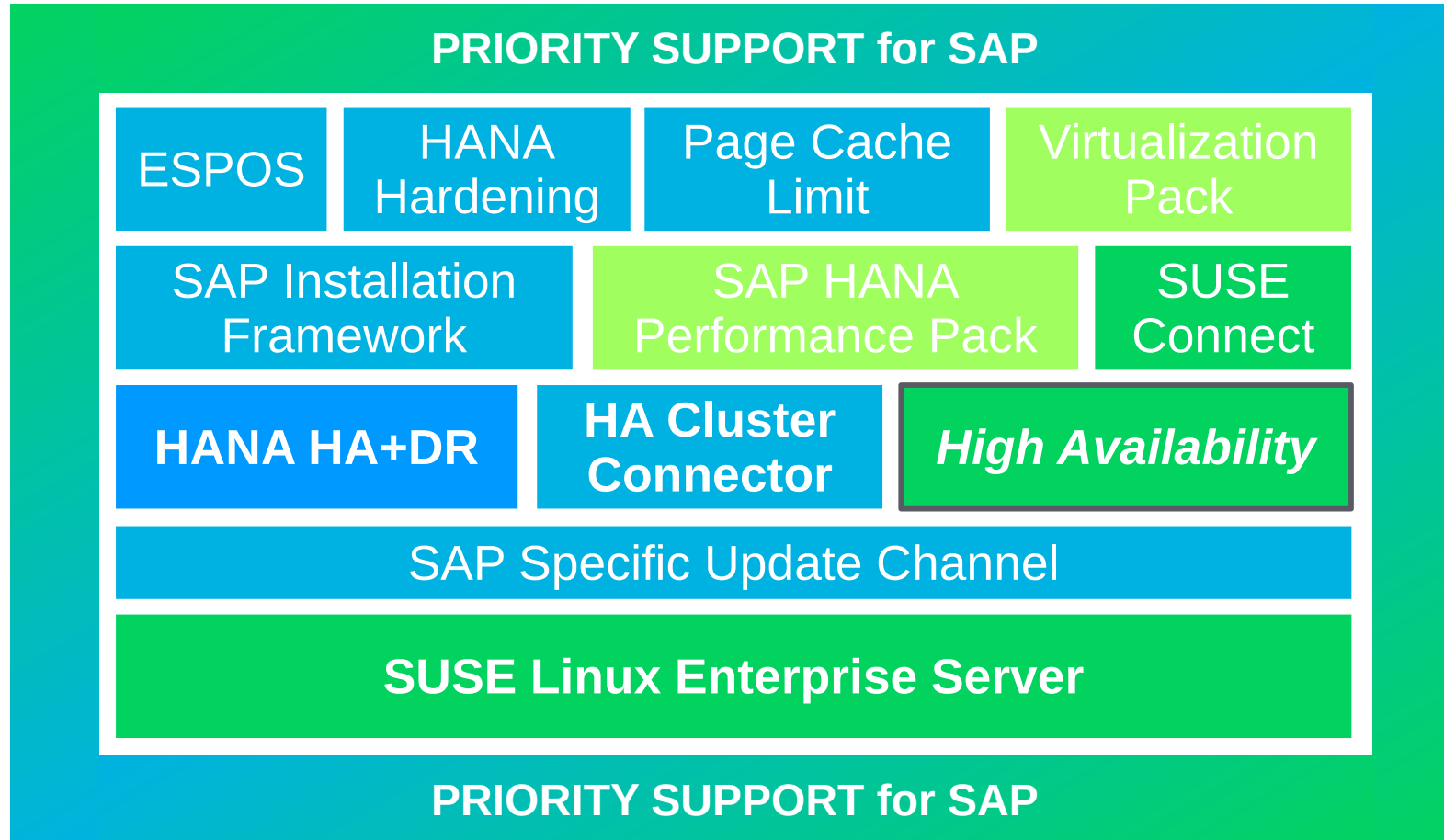


¹Provided by SAP
²Legacy HA Solution Interface

sap_suse_cluster_connector3



SLES for SAP Applications

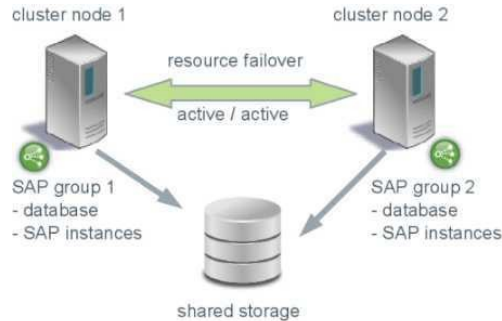


Towards Zero Downtime

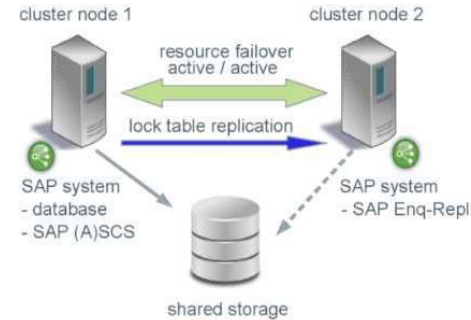
Dokumenty opisujące najlepsze praktyki

Zweryfikowane z Partnerami w SAP Linux Lab

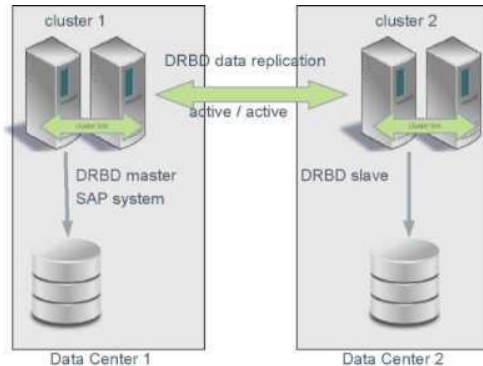
Simple Stack



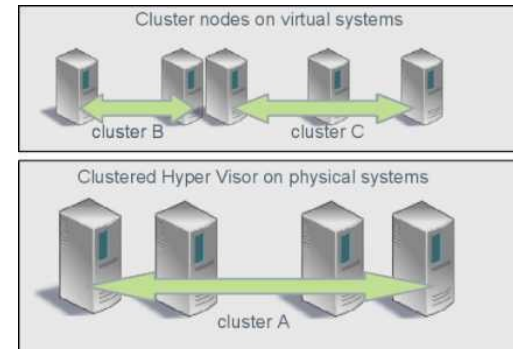
Enqueue Replication



DRBD Data Sync



HA in Virtual Environments



Towards Zero Downtime

Cechy Disaster Recovery*

Metro cluster do ok. 30 km

- Zależne od jakości łącza(pytać SUSE services)
- Potwierdzona jakość replikacji danych przy pomocy wbudowanego MD-Raid
- Integracja z rozwiązaniami do przechowywania danych w tym SDS (pytać SUSE services)

Narzędzie do odtwarzania pojedynczego węzła – ReaR

- Korzysta z natywnych narzędzi i stowników OS
- Integracja z wszystkimi dostawcami rozwiązań klasy Enterprise Backup

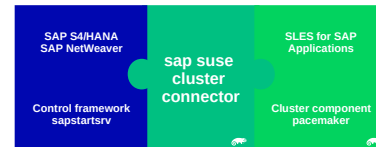
Replikacja danych do centrum zapasowego

- DRBD: brak SAN
- HANA System replication

*Features are part of SLE-HA and SLES-for-SAP

SAP Management Integration

SAP Management Console and Command Line Interface



SAP Systems

- HA1
 - D01 on sapha1ci
 - ASCS00 on sapha1as
 - ERS10 on sapha1er
 - D02 on sapha1d2

SAP NetWeaver™
SAP Management Console

System HA1

Status: Running

Instances: 4, 2 ABAP

Database

High Availability Configuration

State	Category	Description	Comment
SAP_CONTROL_HA_S...	SAP_CONTROL_SAP_STATE	SCS instance running	SCS instance status ok
SAP_CONTROL_HA_S...	SAP_CONTROL_SAP_CONFI...	SAPInstance RA sufficient version (sapha1as...	SAPInstance includes is-ers patch
SAP_CONTROL_HA_S...	SAP_CONTROL_SAP_CONFI...	Redundant Java instance configuration	0 Java instances detected

- Process List
- Access Points
- Enqueue Locks
- Enqueue Statistic
- Log Files
- Computer System
- ERS10 on sapha1er
- D02 on sapha1d2

New sapcontrol functions

HACheckConfig

HACheckFailoverConfig

HAGetFailoverConfig

HAFailoverToNode

Instance **Operating System**

Instance ERS10 on sapha1er

Features: **Replicated Enqueue Server**

Status: Running

High Availability Information

Status: Active

Product Version: SUSE Linux Enterprise Server for SAP Applications 12 SP2

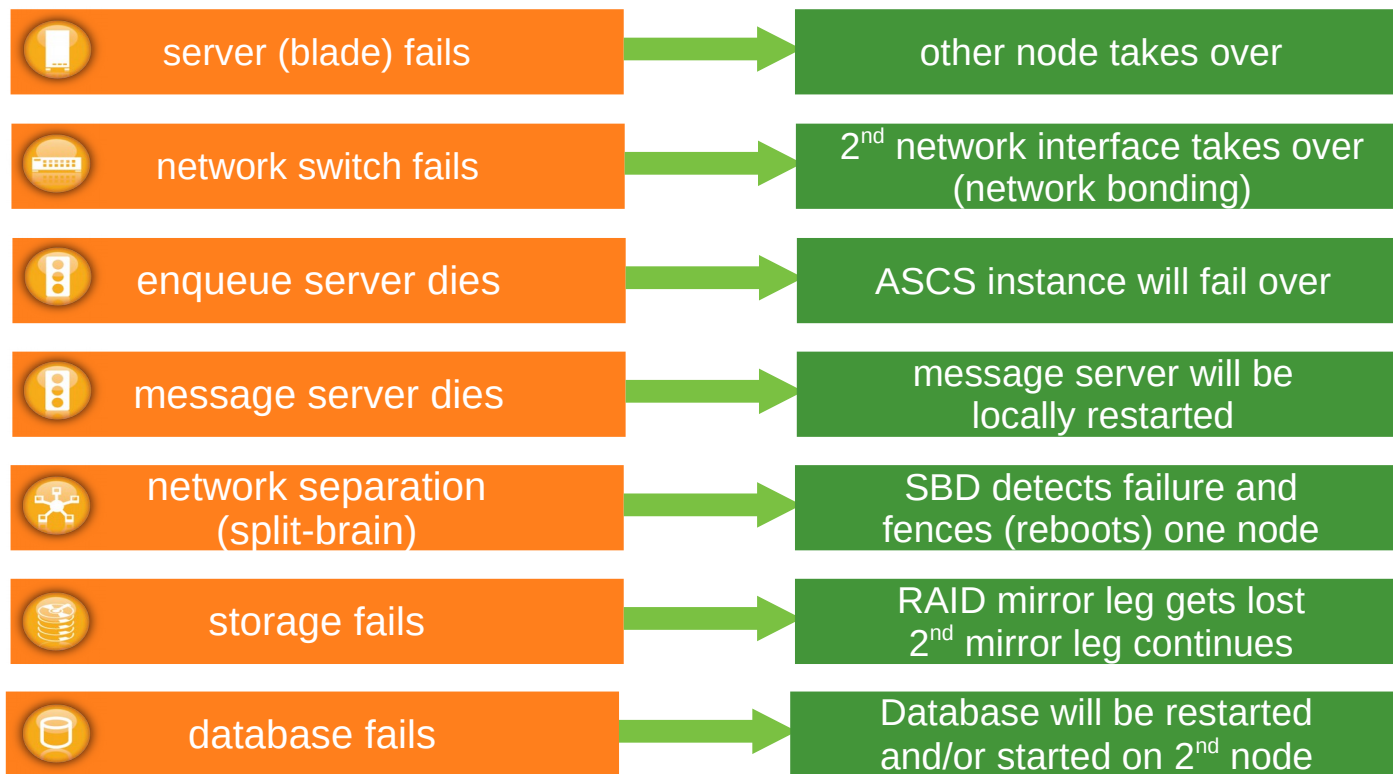
SAP Interface Version: SUSE Linux Enterprise Server for SAP Applications 12 SP2 (sap_suse_cluster_connector 3.0.1)

Active Node: hacert01

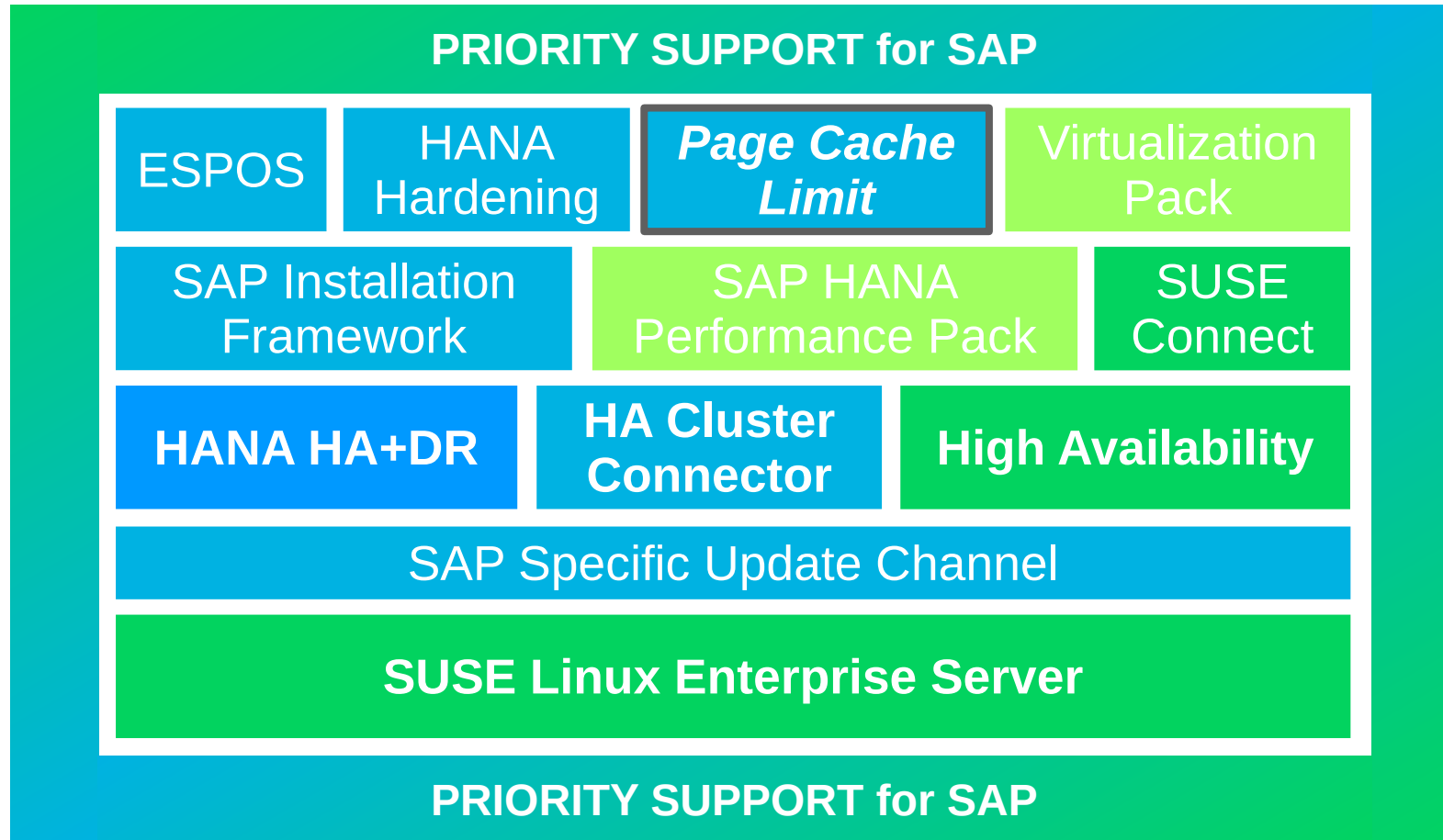
Available Nodes: hacert02 Failover

Awarie i... rozwiązania

Kilka przykładów na to „co się stanie jeśli...”



SLES for SAP Applications

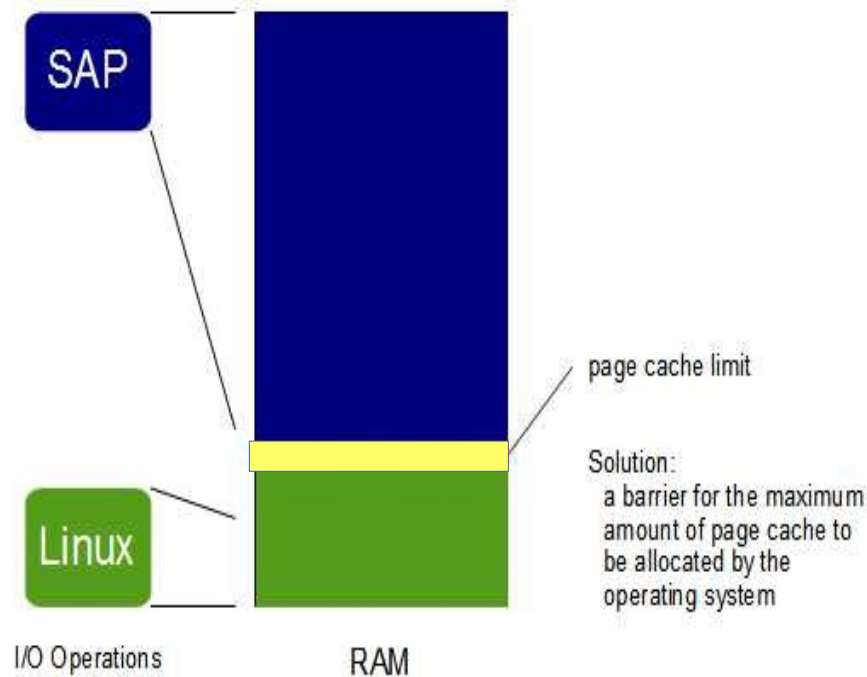


Optimum Performance

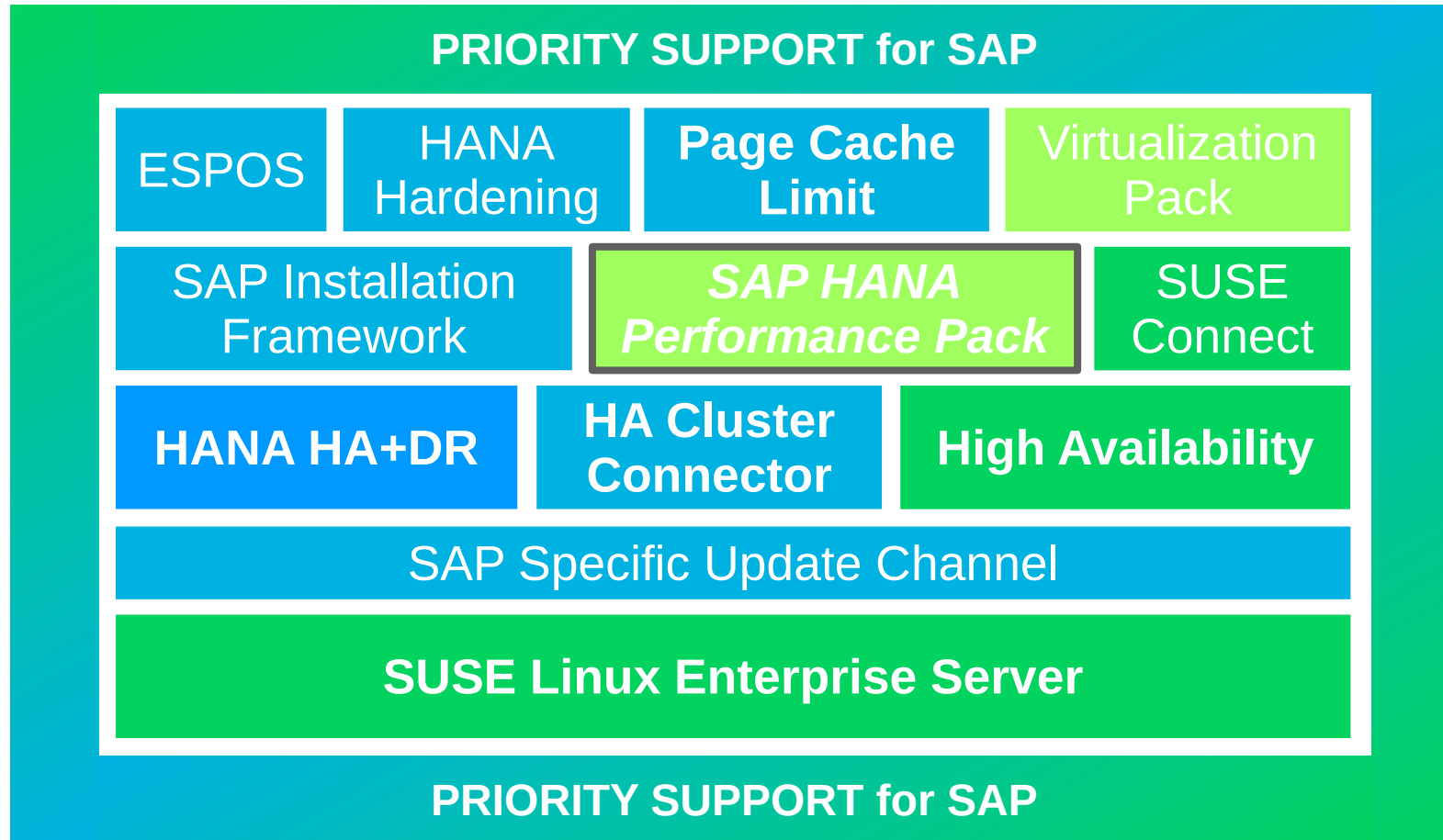
Page Cache Limit

Mówi kernelowi, że po wypełnieniu cache do poziomu skonfigurowanego limitu, pamięć jest ważniejsza dla aplikacji i nie powinna być dalej zajmowana przez cache, ani swapowana.

SAP Note 1557506: Linux paging improvement



SLES for SAP Applications



Optimum Performance

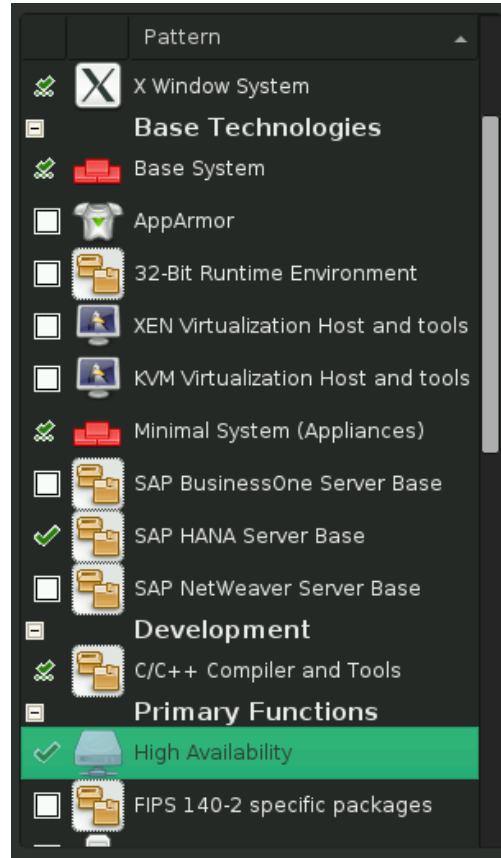
SAP Notes SAP HANA Performance

0061136 Hostnames of SAP servers
0171356 SAP software on Linux General information
0784391 SAP support terms 3rd-party Linux kernel drivers
1275776 Preparing SLES for Sap Environments
1310037 SUSE LINUX Enterprise Server 11: Installation notes
1501701 Single Computing Unit Performance and Sizing
1514966 SAP HANA 1.0: Sizing SAP In-Memory Database
1514967 SAP HANA: Central Note
1523337 SAP In-Memory Database 1.0: Central Note
1793345 Sizing for SAP Suite on HANA
1681360 Support for SAP Software on Linux / Fusion-IO
1824819 SAP HANA DB: Recommended OS settings for SLES 11 / SLES for SAP Applications 11 SP2
1855805 Recommended SLES 11 packages for HANA support on OS level
1890444 Slow HANA system due to CPU power save mode
1867783 XFS Data Inconsistency Bug with SLES 11 SP2
1888072 SAP HANA DB: Indexserver crash in __strcmp_sse42
1846872 "No space left on device" error reported from HANA
1876398 Network configuration for System Replication in HANA SP6
1944415 Hardware Configuration Guide and Software Installation Guide for SUSE Linux Enterprise Server...
1944799 SAP HANA Guidelines for SLES Operating System Installation
1954788 SAP HANA DB: Recommended OS settings for SLES 11 / SLES for SAP Applications 11 SP3
1943937 Hardware Configuration Check Tool - Central Note
1944415 Configuration Guide for Hardware Platforms of SuSE Linux Enterprise Server
2000003 FAQ: SAP HANA

Optimum Performance

Software Setup for SAP HANA

SUSE Linux Enterprise Server
For SAP Applications 15



Patterns

- + Base System
- + X Window System
- + Minimal System
- + SAP HANA Server Base
- + C/C++ Compiler and Tools
- + ClusterTools2
- No AppArmor
- No Gnome Desktop
- No 32-bit Runtime
- No Web-based Server Management

Optional Packages

- + rear
- + xfsprogs
- + xfsdump

Optimum Performance

SAP HANA Parameters Kernel Settings

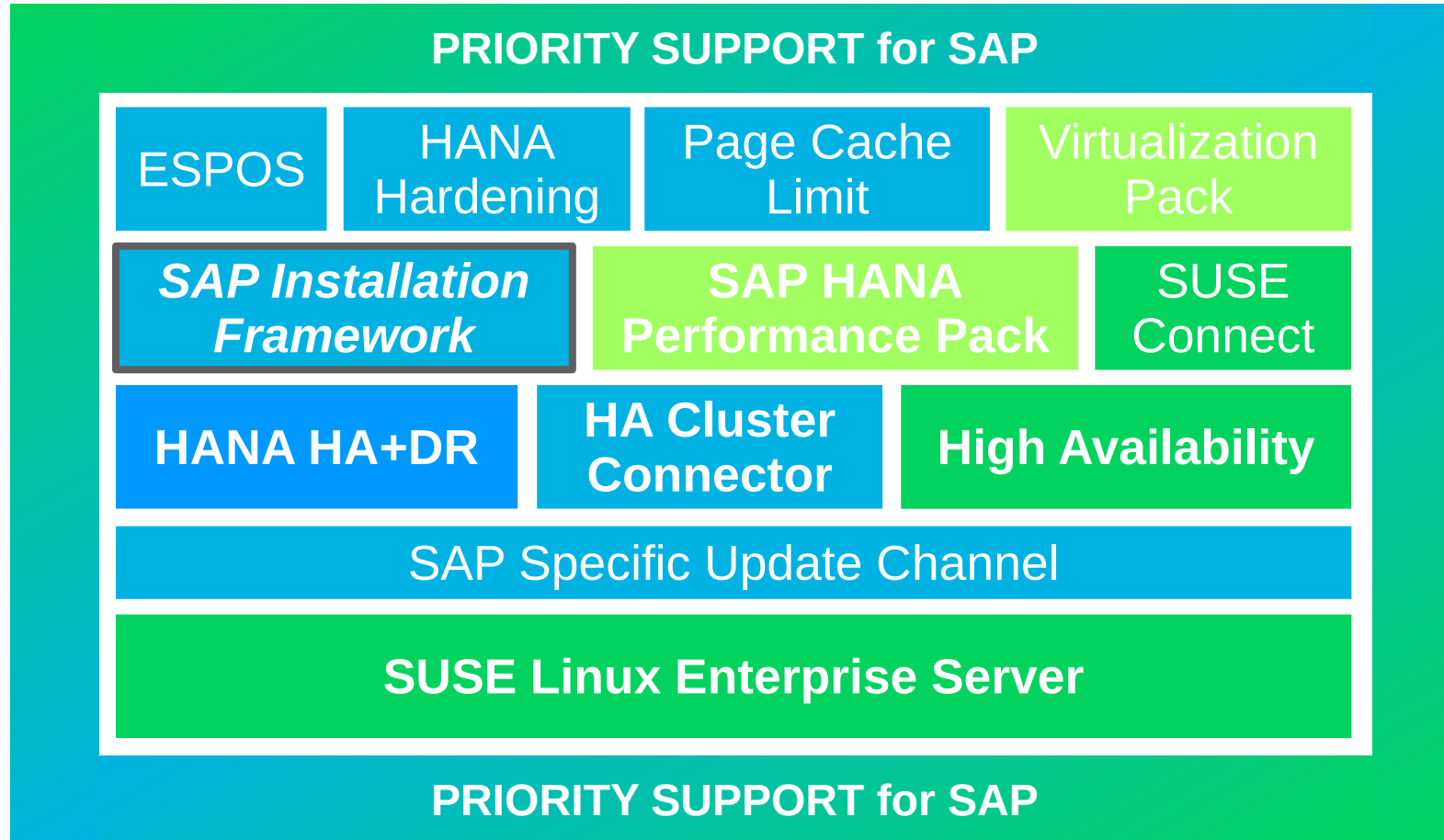
kernel boot options

- intel_idle.max_cstate
- processor.max_cstate
- elevator
- cgroup_disable
- transparent_hugepage

sysctl settings

- vm.pagecache_limit_mb
- vm.pagecache_limit_ignore_dirty
- vm.dirty_bytes
- vm.dirty_background_bytes
- net.ipv4.tcp_slow_start_after_idle
- misc. settings from sapconf

SLES for SAP Applications

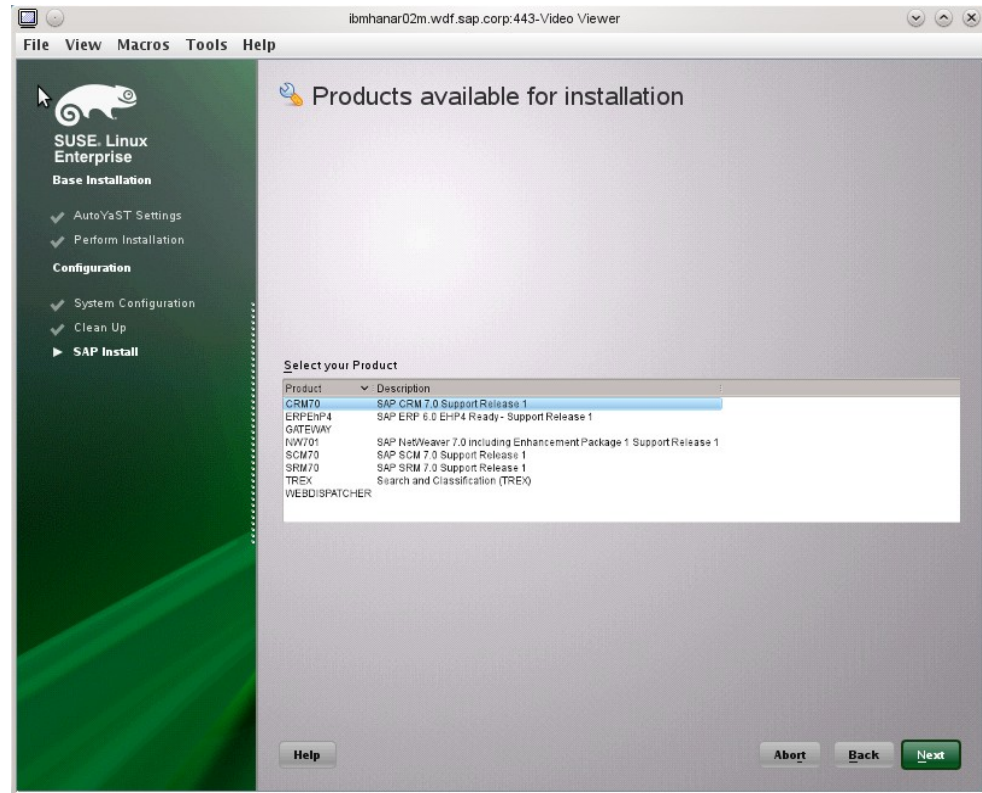


Simplified Operations

SAP Installation Wizard

Informacje niezbędne do instalacji Linuxa:

- Hostname
- Domain
- IP address
- Subnet mask
- Domain searchlist (DNS)
- IP for nameserver
- IP for gateway
- Masterpassword for the system installation

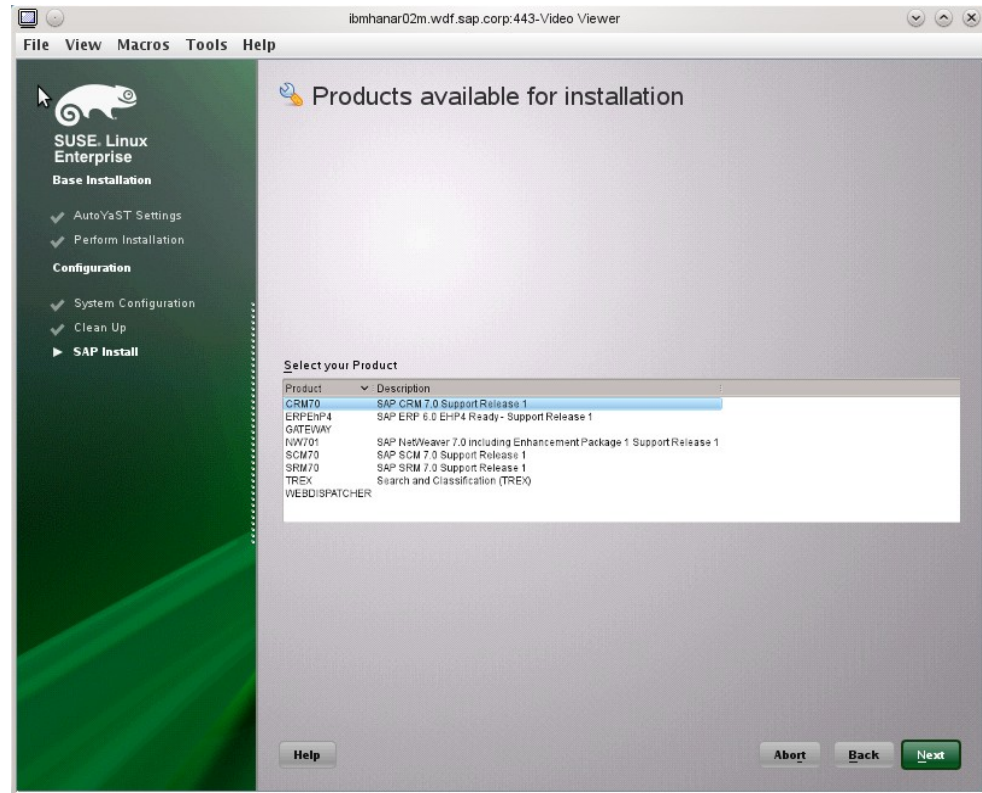


Simplified Operations

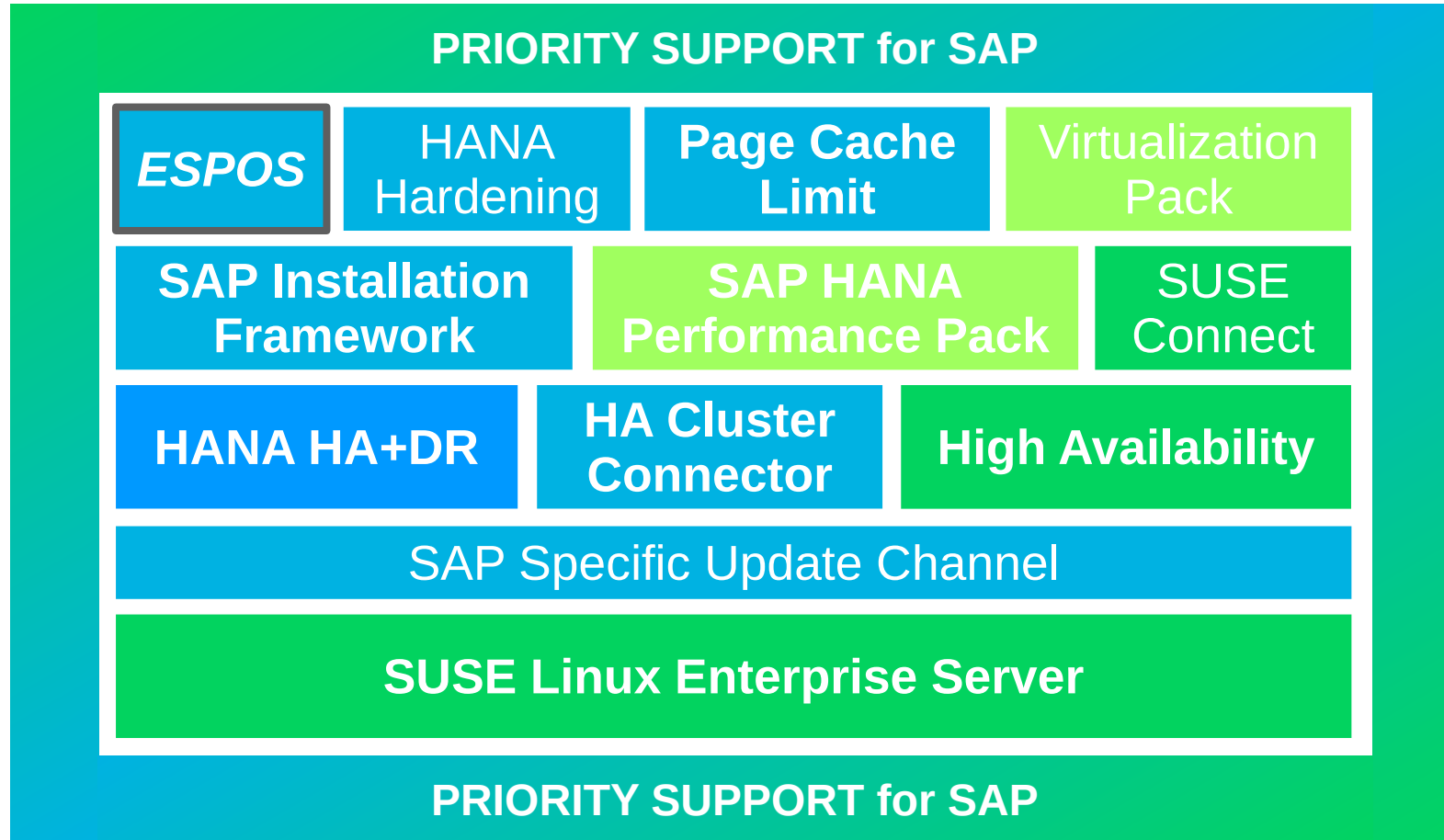
SAP Installation Wizard

Informacje niezbędne do instalacji SAP:

- System ID of the system to be built up
- Virtual hostname
- Virtual IP address for SAP service
- Virtual netmask
- Instance number of the SAP system
- Solution Manager key for the SAP system
- System T-Shirt Sizing (S, M, L)
- Database Log Mode

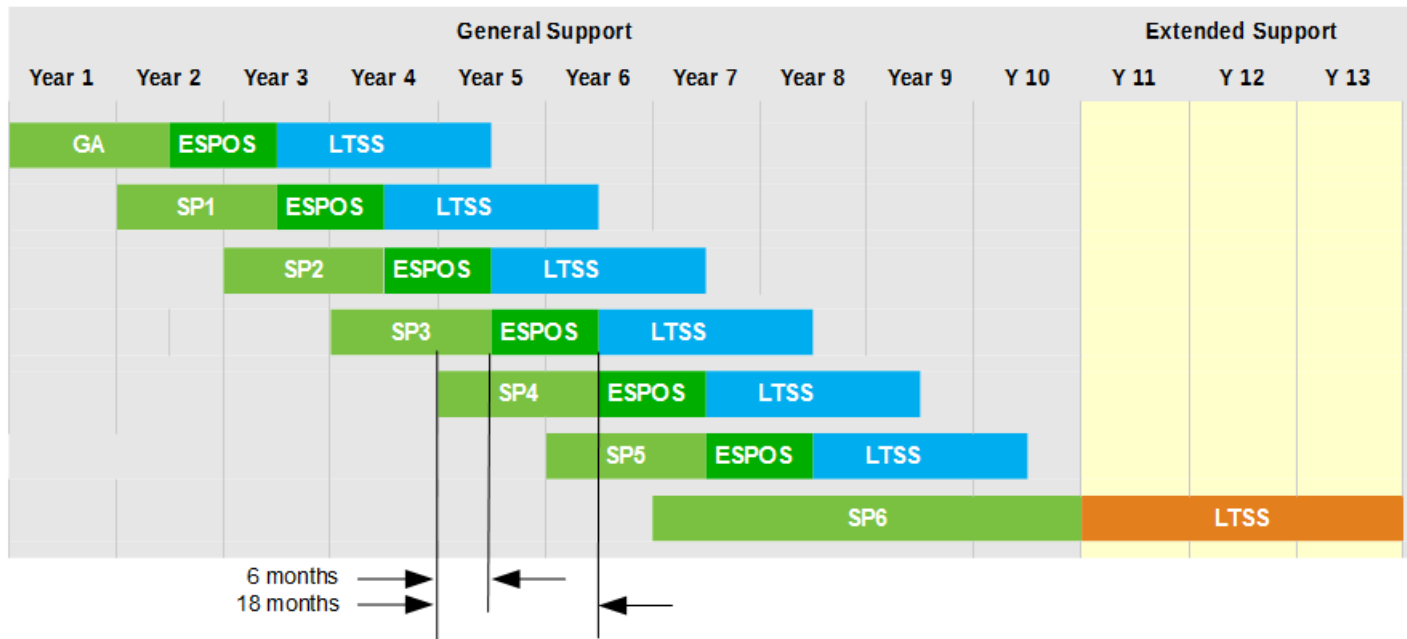


SLES for SAP Applications



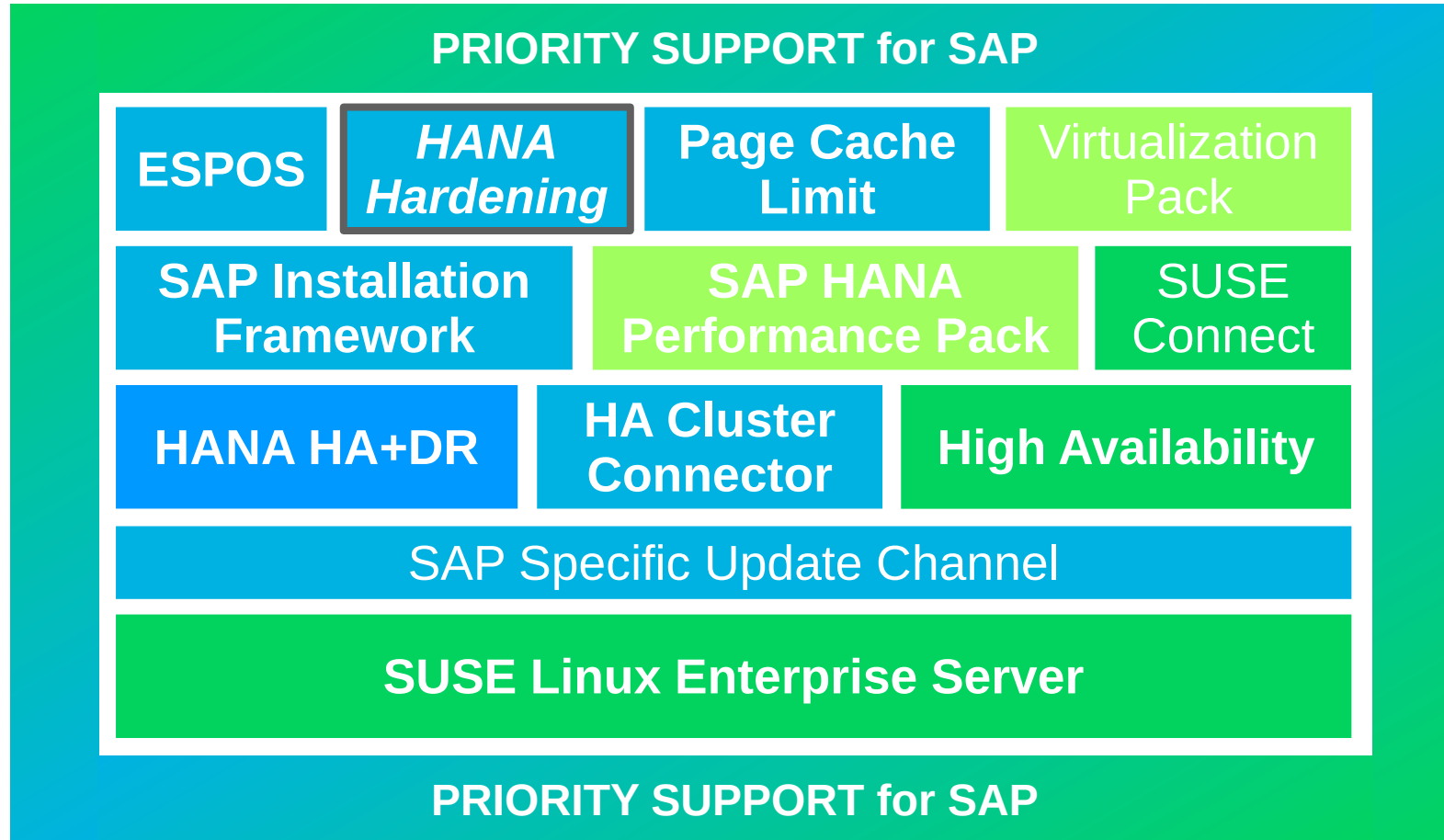
Simplified Operations

Extended Service Pack Overlap Support



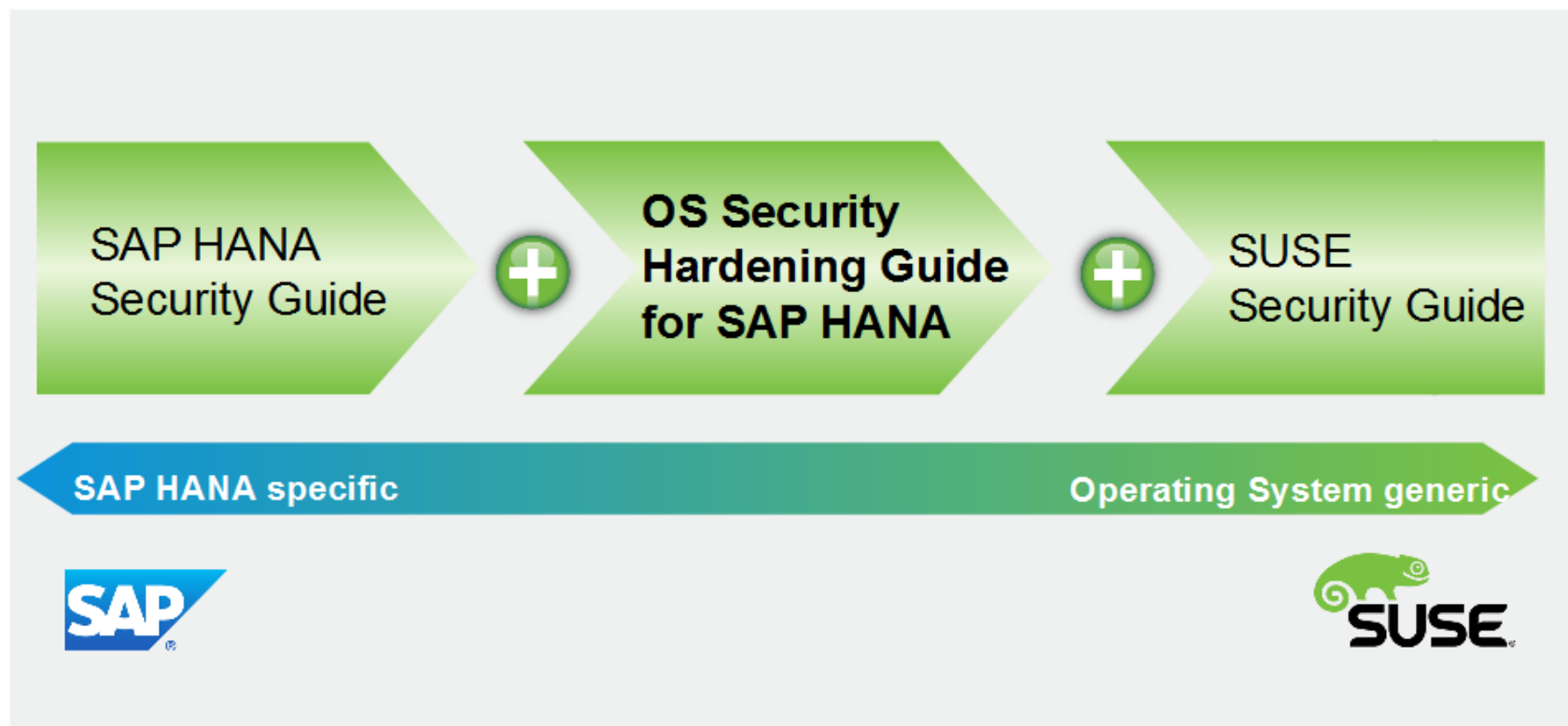
- 13-letni cykl życia (10 lat wsparcia podstawowego + 3 lata wsparcia rozszerzonego)
- 5-letni cykl życia dla Service Packów (3 lata wsparcia podstawowego + 2 lata wsparcia rozszerzonego)
- 18-miesięczny okres migracji pomiędzy kolejnymi service packami
- Dostępny Long Term Service Pack Support (LTSS) dla wszystkich wersji łącznie z GA

SLES for SAP Applications

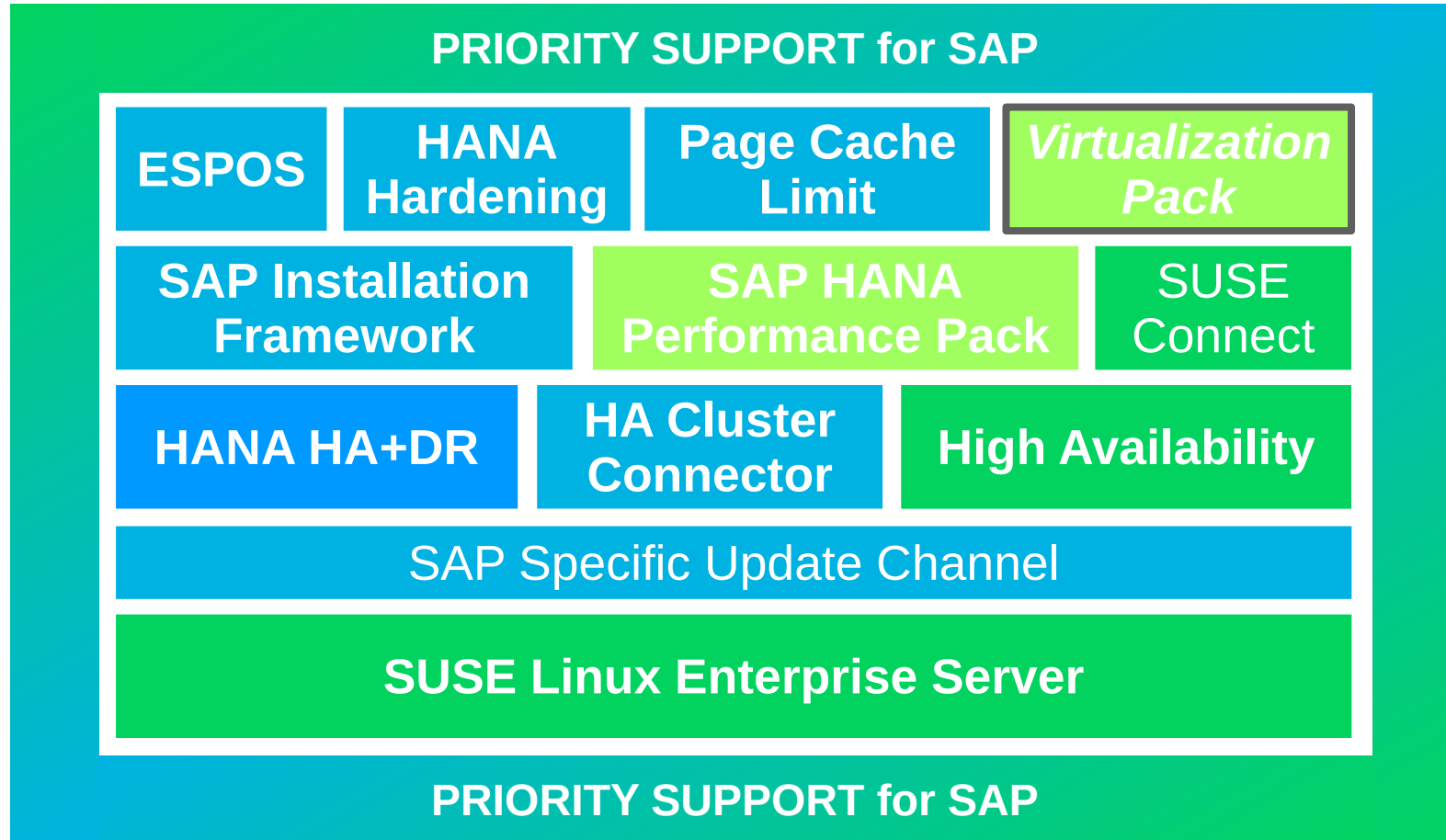


Uproszczona obsługa

Securing SAP HANA with SUSE Linux



SLES for SAP Applications

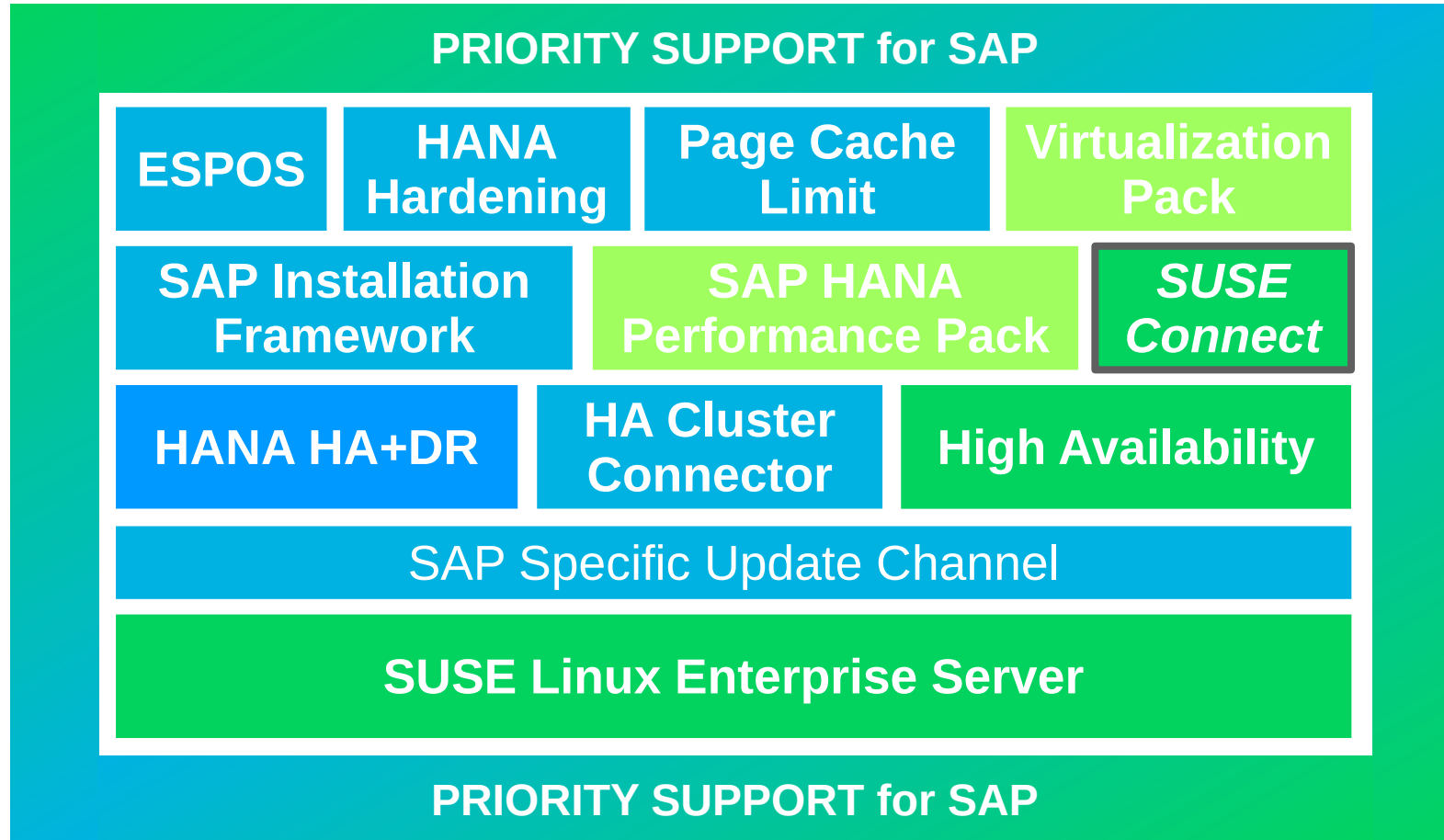


Virtual Machine Driver Pack

Sterowniki, narzędzia i najlepsze praktyki dla osiągnięcia optymalnej wydajności i uproszczenia utrzymania SLES for SAP na:

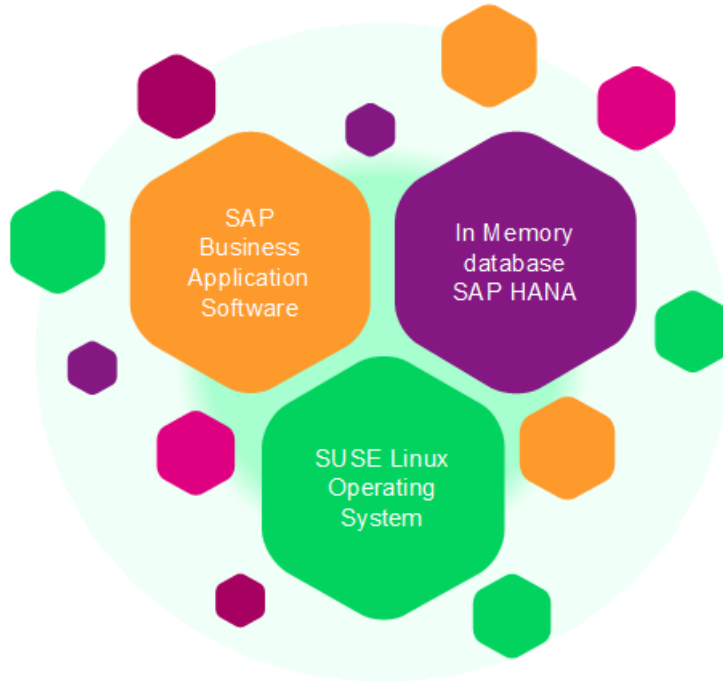
- KVM
 - np. Best Practice SAP HANA on KVM
- Środowiskach chmury publicznej
 - np. AWS, Azure, Google

SLES for SAP Applications



Simplified Operations

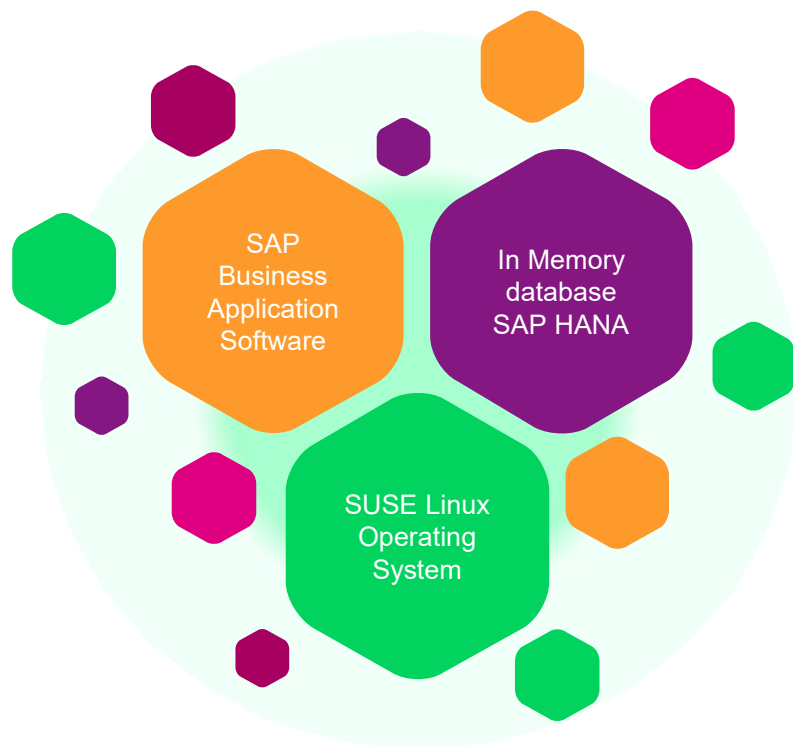
SUSE Connect – Uzupełniające oprogramowanie od partnerów



- Devops
- Business Service Management
- System Monitoring
- Tooling
- Enterprise Content Management
- Archiving
- Servicedesk
- Change Control
- Backup
- Code Transformation
- Landscape Transformation
- Workload Automation
- Antivirus
- Code Security

Simplified Operations

SUSE Connect – wybrani Partnerzy



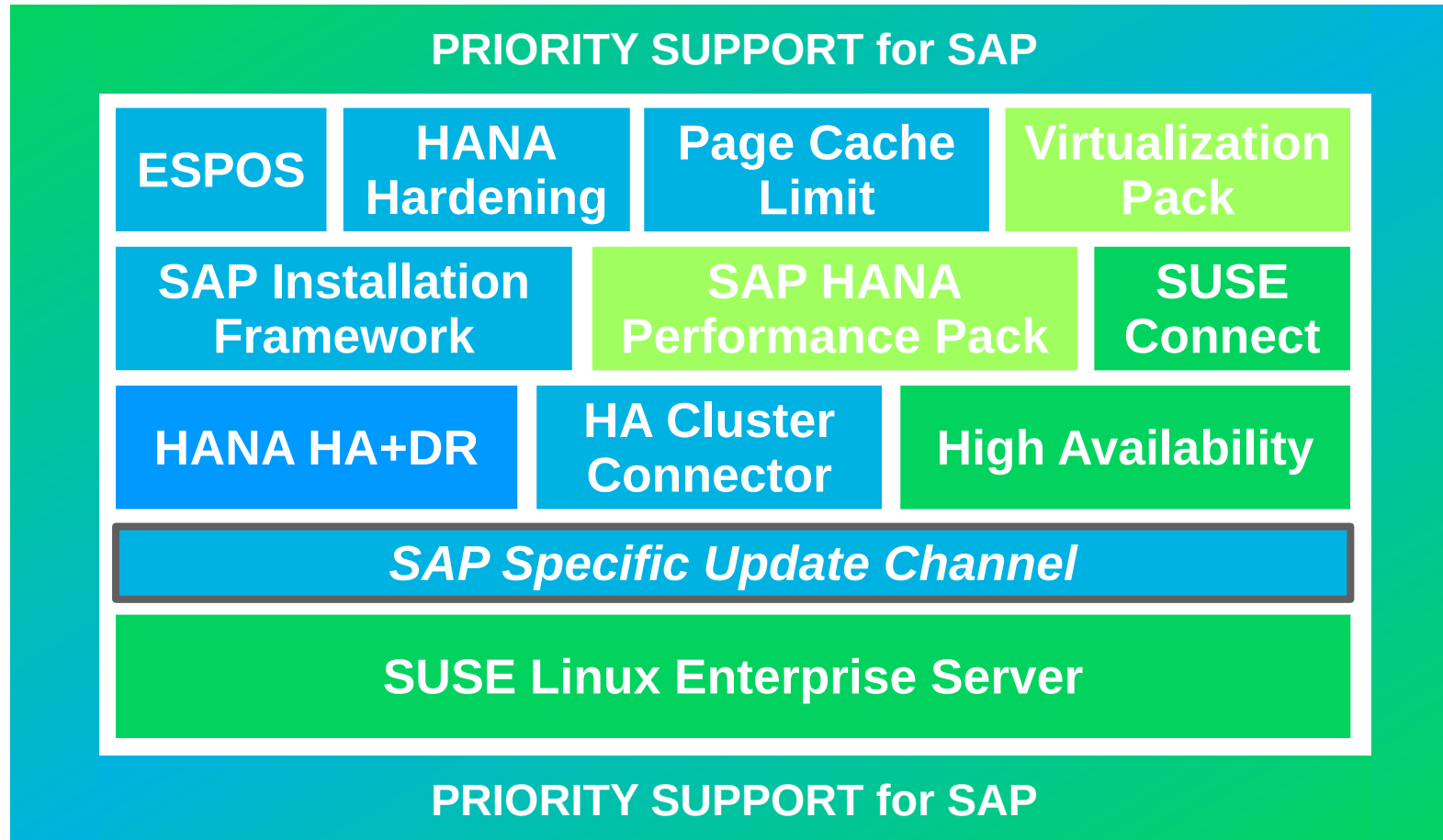
DATAVARD

SEP

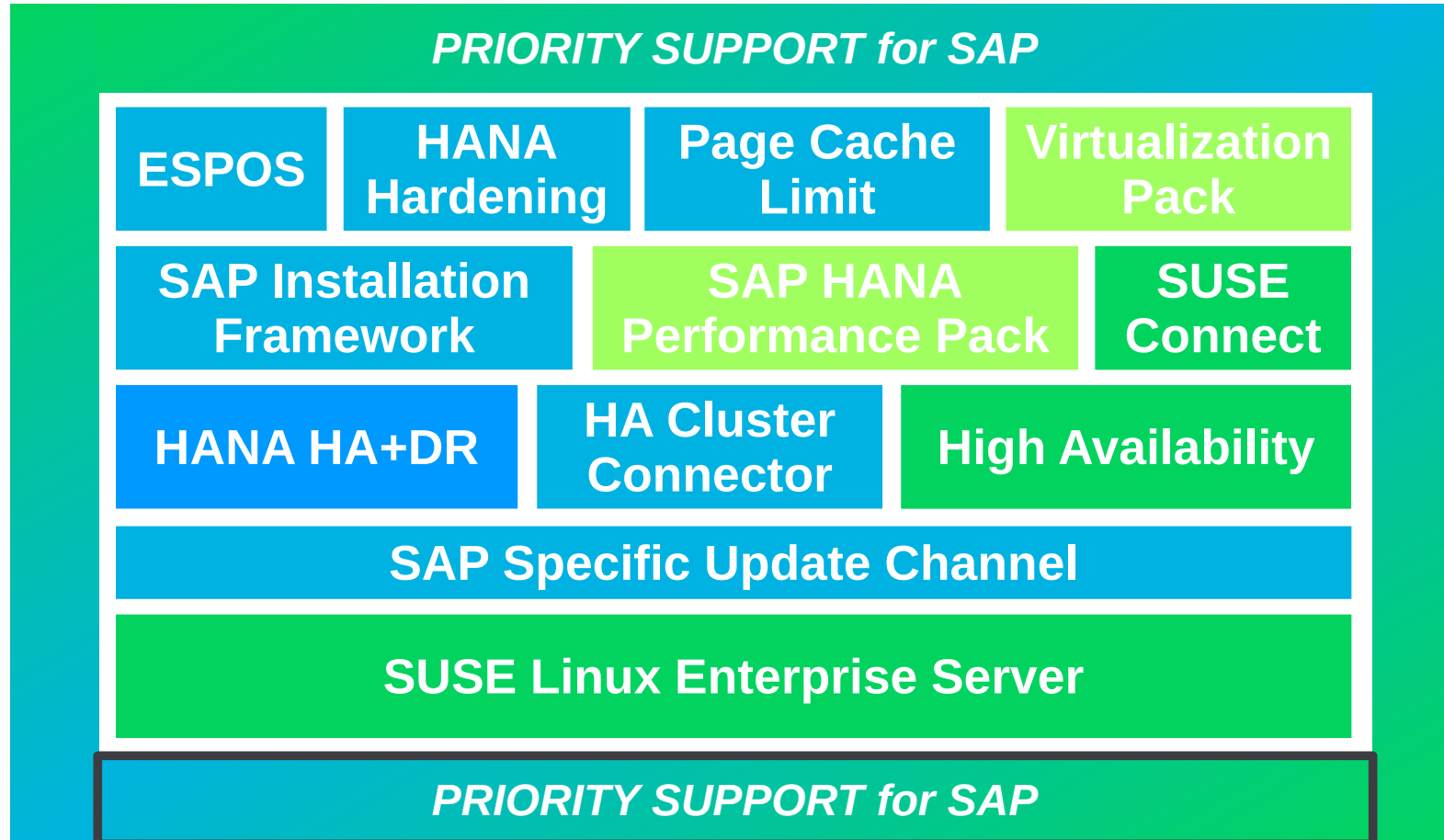
Centrality
Enterprise-Class IT & BSM Monitoring Solutions

Revelation
software concepts

SLES for SAP Applications



SLES for SAP Applications

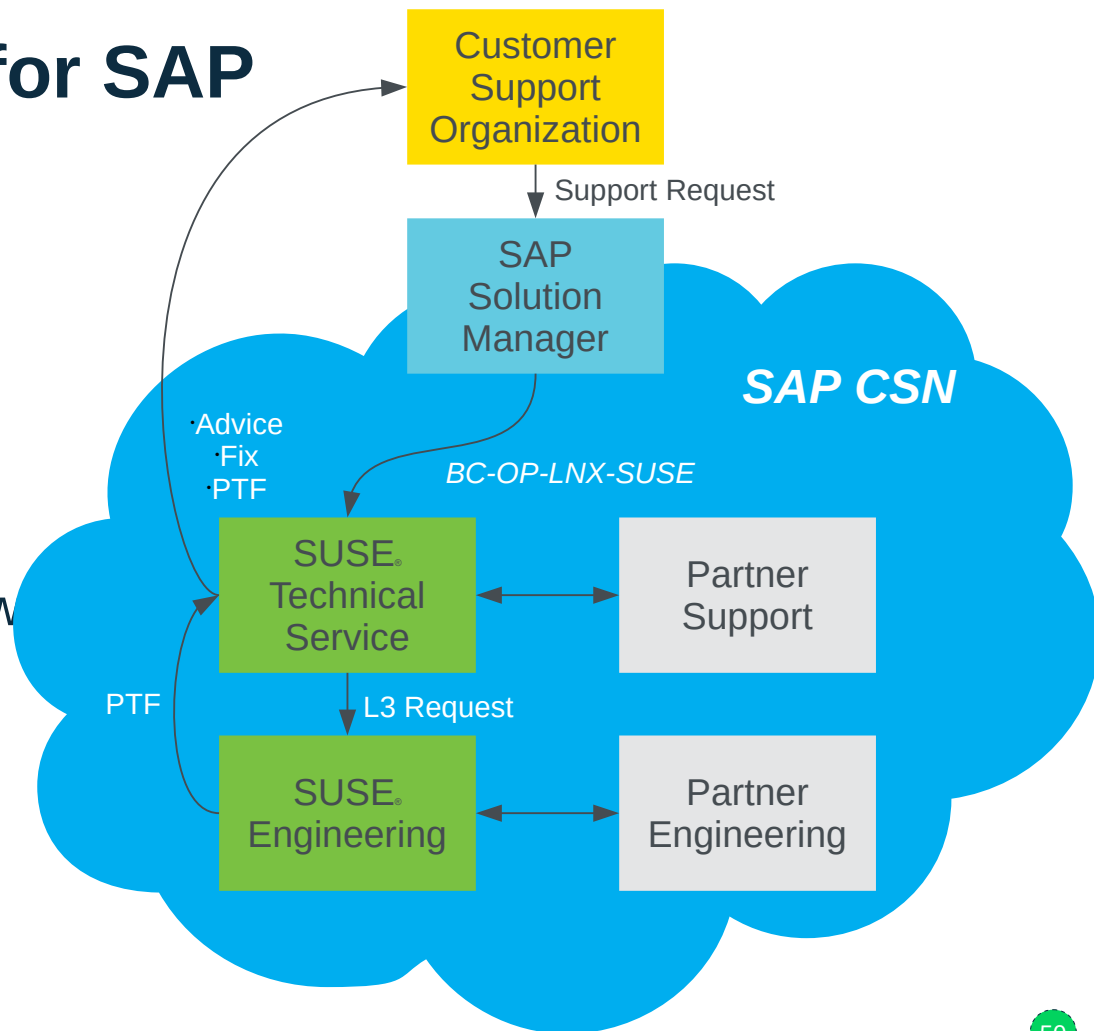


Simplified Operations

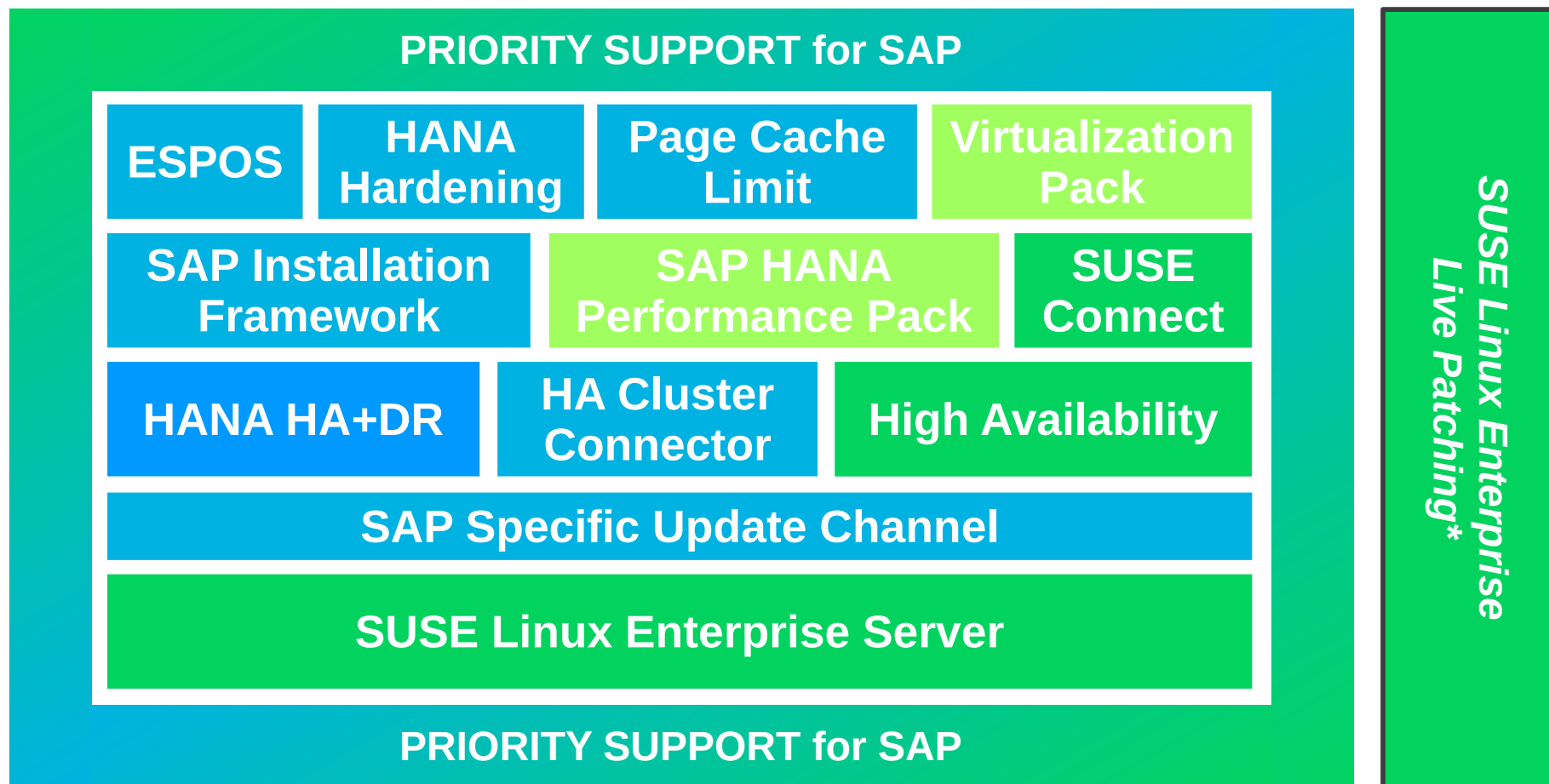
SLES Priority Support for SAP

- Zintegrowany z SAP Support Process
- 24x7
- Wspiera SAP Customer Support Network
- Szybkie wsparcie przez ekspertów SAP LinuxLab

SAP Note 1056161 - SUSE Priority Support for SAP-Applications

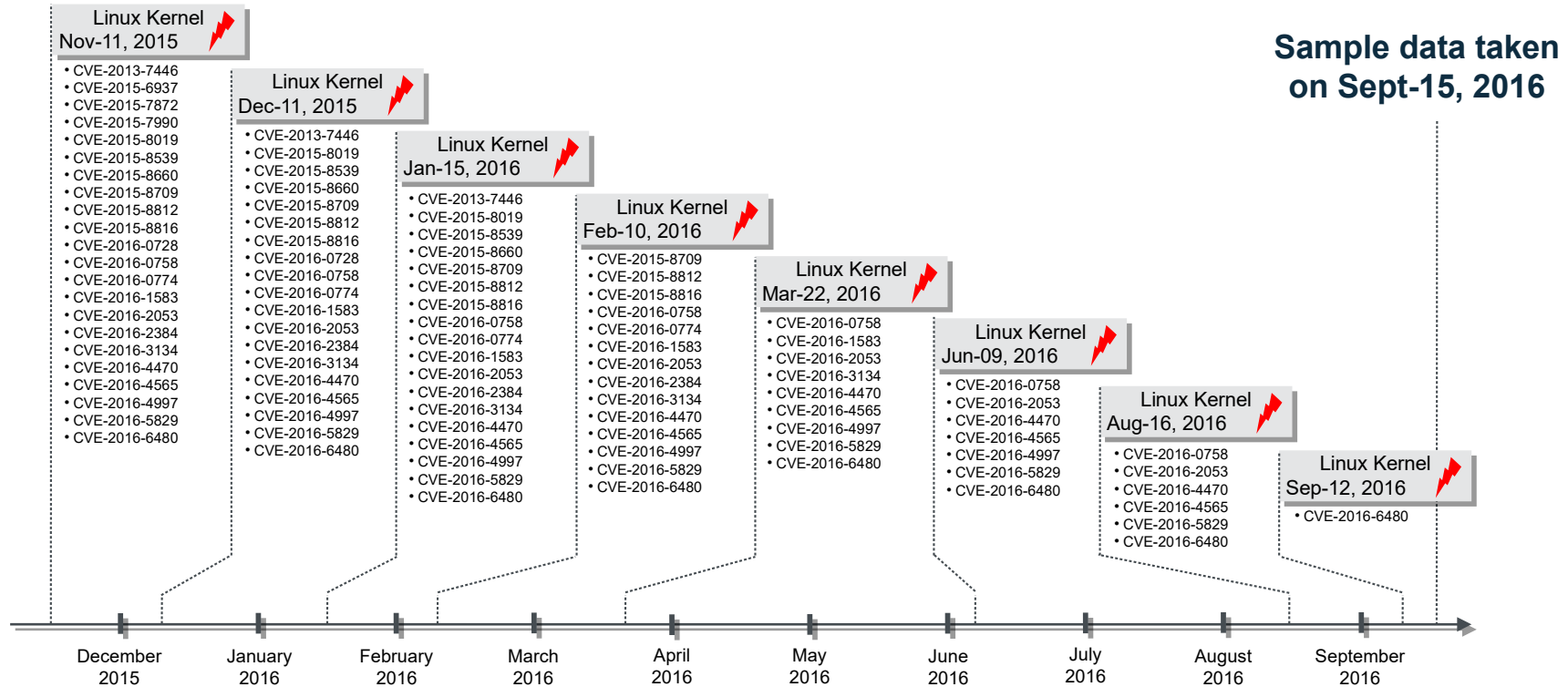


SLES for SAP Applications



* Live Patching SAP Note 1984787

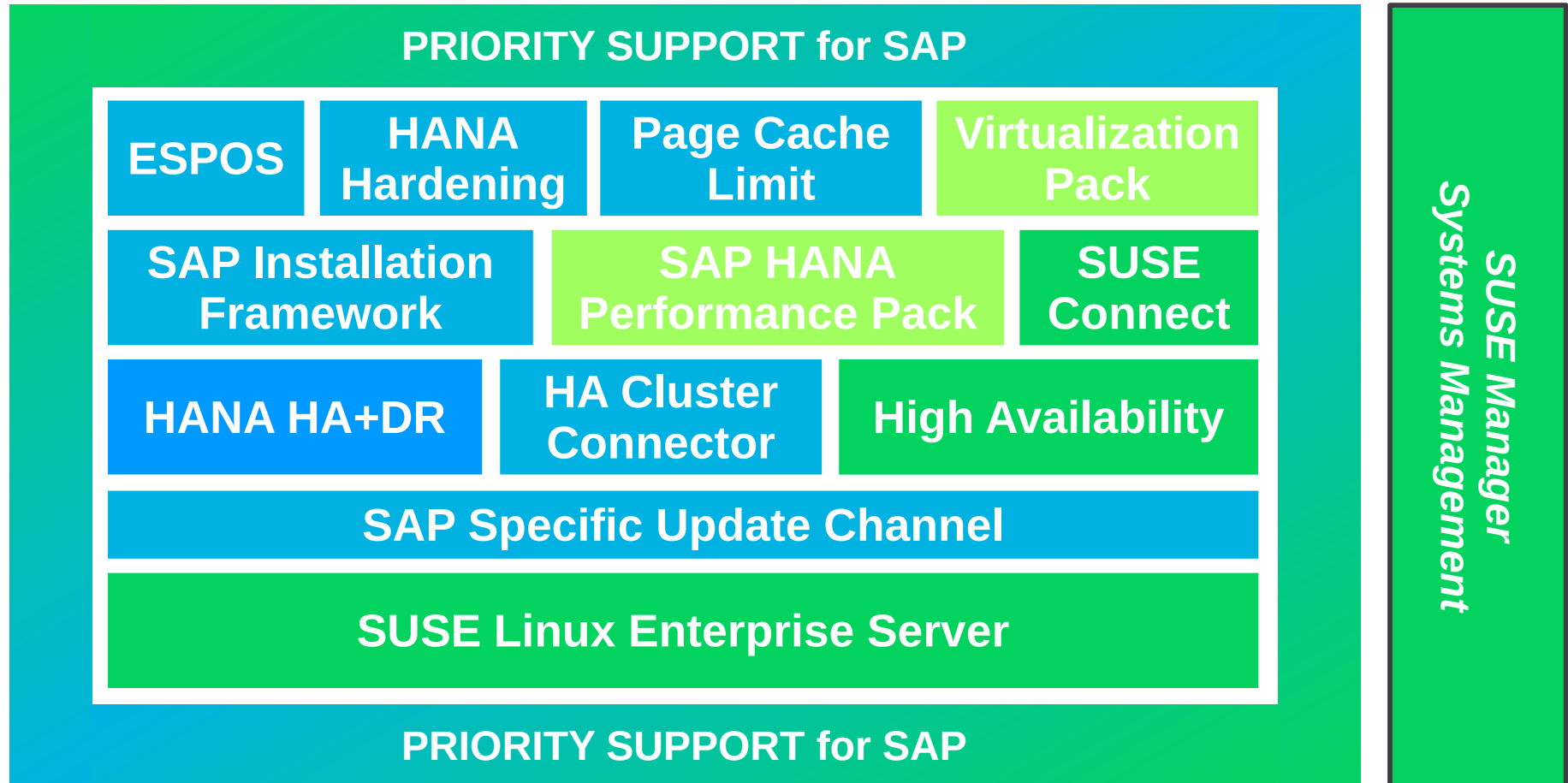
In a data center, not so long ago ...



In a SUSE data center, today ;-)

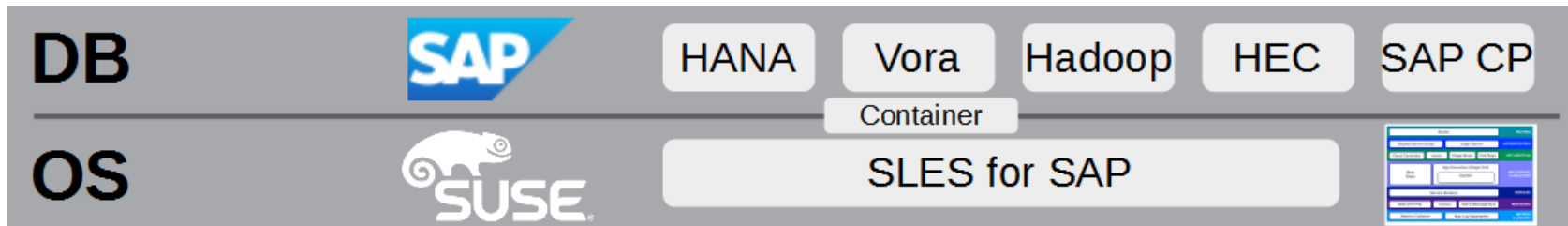


SLES for SAP Applications



Simplified Operations

Automation for SAP HANA and Hadoop



SUSE Manager

for Infrastructure Automation

- Staging Procedure (DEV, QAS, PRD)
- CVE Reporting for Security Patches
- Reporting/Compliance SAP Basis



SUSE YaST2 framework for SAP Products



Administrator Settings

yast2



HA Setup for SAP Products

yast2 sap_ha



SAP HANA Firewall

yast2 hanafirewall



SAP Installation Wizard

yast2 sap-installation-wizard



System Tuning for SAP

yast2 saptune



SUSE HANA Cluster Update

yast2 hana_updater

Podsumowanie

Korzyści z SUSE SLES for SAP Applications

Jak możemy zaspokoić Państwa potrzeby biznesowe?

Cecha

- Kierunek: Zero Downtime
- Optymalna wydajność
- Uproszczona obsługa

Korzyść

- ✓ Gwarantuje ciągłość biznesową
- ✓ Ochrona poniesionych inwestycji
- ✓ Zmniejszenie kosztów utrzymania

Conclusion

The screenshot shows the product page for SUSE Linux Enterprise Server for SAP Applications. The header includes the SUSE logo and navigation links: Products & Solutions, Support & Services, Partners, Communities, About, Free Downloads, and Shop. A breadcrumb trail shows the path: Home > Products > SUSE Linux Enterprise Server for SAP Applications. The main content area features the product name, a headline 'The Leading Platform for SAP Applications on Linux', a '60 Day Free Trial' button, and a note about '60 Days of Patches and Updates'. A large illustration of a computer monitor with a green screen and a double-headed arrow indicates cloud connectivity. The footer contains a dark blue bar with the product name and a 'How to Buy' button, followed by a row of four tabs: Overview (selected), Tech Specs, FAQs, and Resources.

SUSE

Products & Solutions Support & Services Partners Communities About Free Downloads Shop

Products SUSE Linux Enterprise Server for SAP Applications

SUSE Linux Enterprise Server for SAP Applications

The Leading Platform for SAP Applications on Linux

60 Day Free Trial

60 Days of Patches and Updates

SUSE Linux Enterprise Server for SAP Applications How to Buy

Overview Tech Specs FAQs Resources

<http://www.suse.com/products/sles-for-sap>

Your Linux is SAP ready.™

Appendix

Links 1/2

SAP Notes

- 0171356 SAP on Linux
- 0816097 Availability of SAP on Linux for x86_64
- 1310037 SLES11
- 1275775 sapconf
- 1172419 Java VM on x86_64
- 1008828 SAP Kernel 4.6D
- 0877795 SAP sapstartsrv before 7.0
- 0995116 SAP backporting sapstartsrv
- 1014480 SAP Mgmt. Console
- 0618104 sapsysinfo
- 1552925 Linux: High Availability Cluster Solutions
- 1056161 SUSE Priority Support for SAP-Applications
- 1763512 Support details for SUSE Linux Enterprise High Availability



Links 2/2

<http://www.sap.com/linux>

<http://wiki.sdn.sap.com/wiki/display/HOME/SAPonLinuxNotes>

<http://www.sap.com/partners/directories/searchpartner.epx>

<http://scn.sap.com/docs/DOC-26718>

<http://scn.sap.com/docs/DOC-25453>

<http://scn.sap.com/docs/DOC-28875>

<http://scn.sap.com/docs/DOC-25453>

<http://scn.sap.com/docs/DOC-8541>

<http://scn.sap.com/docs/DOC-31701>

<http://www.sdn.sap.com/irj/scn/index?rid=/library/uuid/d079c1f2-5c6b-2f10-dcbb-a29c20865e81>

<https://help.sap.com/viewer/e458064e3077486994caaf9a85c4aa23/7.51.3/en-US/902412f09e134f5bb875adb6db585c92.html>

<http://www.suse.com/partners/sap>

<https://www.suse.com/products/sles-for-sap/>

<https://www.suse.com/products/sles-for-sap/resource-library>





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