



Cisco Touch – Webinare für Kunden



Das Multi-Tool wird grün:

## Die Funktionen der neuen Cisco LAN Management Solution 3.2 im Überblick

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## Ziele dieses Webinars



Gewinnen Sie einen Überblick über das Cisco Netzwerkmanagement Portfolio!



Lernen Sie die neuen Features der Cisco LAN Management Solution 3.2 kennen!



Entdecken Sie das Thema „Cisco EnergyWise“!

# Agenda

- Cisco's Netzwerkmanagement Portfolio
  - Ein kurzer Überblick
- CiscoWorks LAN Management Solution (LMS)
  - Was ist neu in LMS Version 3.2
    - Virtual Networking Manager
    - Datenbankzugang
    - Redundanz
- Cisco EnergyWise
  - mehr als nur ein Feature von LMS
- Weitere Informationen



# Warum überhaupt Netzwerkmanagement?

Reality
Intermittent service
Manual operation
Complexity
Wizards
Fixed / inflexible
Silo Systems
Auditability
Incompatible systems

Requirement
High <b>Availability</b>
<b>Automated</b>
<b>Simplicity</b>
Integrated Workflow
Scalable / flexible
<b>Integrated</b>
Compliance
Compatible

# Cisco's NMS Produktportfolio

All NMTG Products

Service Provider

Enterprise

SMB

Non-NMTG Products

EOL/EOS

## IP Communications Management

Cisco Unified Communications Management

[Cisco netManager IP Infrastructure](#)

[Cisco netManager Unified Communications](#)

[Cisco Unified Operations Manager](#)

[Cisco Unified Provisioning Manager](#)

[Cisco Unified Service Monitor](#)

[Cisco Unified Service Statistics Manager](#)

[CiscoWorks Voice Manager](#)

QoS Policy Management

[CiscoWorks QoS Policy Manager](#)

## Network Analysis and Planning

[Cisco Bandwidth Quality Manager](#)

[Cisco Performance Visibility Manager](#)

## Network Configuration and Change Management

[CiscoWorks Network Compliance Manager](#)

[EMC VovenceControl](#)

## Network Management Services Modules

Cisco Network Analysis Module (NAM) Products

[Cisco Branch Routers Series Network Analysis Module](#)

[Cisco Catalyst 6500 Series and Cisco 7600 Series Network Analysis Module](#)

[Cisco NAM 2200 Series Appliances](#)

## Optical Management

[Cisco Transport Manager](#)

## Other Network Management Products

[Cisco License Manager](#)

## Routing and Switching Management

[Cisco Netflow Collection Engine](#)

[Cisco Service Path Analyzer](#)

Cisco Active Network Abstraction Products

[Cisco Active Network Abstraction](#)

[Cisco ANA Carrier Ethernet Activation](#)

Cisco Active Network Abstraction SDKs

[Cisco Active Network Abstraction Integration SDK](#)

Cisco Assurance Managers

[Cisco MPLS Assurance Manager](#)

[Cisco Video Assurance Management Solution](#)

Cisco Diagnostics Expert Products

[Cisco MPLS Diagnostics Expert](#)

Cisco Info Center Products

[Cisco Info Center](#)

## Routing and Switching Management

Cisco IP Solution Center Products

[Cisco IP Solution Center](#)

[Cisco IP Solution Center L2 VPN and Carrier Ethernet Management](#)

[Cisco IP Solution Center L2 VPN Management](#)

[Cisco IP Solution Center MPLS VPN Management](#)

[Cisco IP Solution Center Security Management](#)

[Cisco IP Solution Center Traffic Engineering Management](#)

CiscoWorks LAN Management Solution Bundle

[CiscoWorks Assistant](#)

[CiscoWorks Campus Manager](#)

[CiscoWorks CiscoView](#)

[CiscoWorks Common Services Software](#)

[CiscoWorks Device Fault Manager](#)

[CiscoWorks Internetwork Performance Monitor](#)

[CiscoWorks LAN Management Solution](#)

[CiscoWorks LMS Portal](#)

[CiscoWorks Resource Manager Essentials](#)

CiscoWorks LAN Management Solution Extensions

[CiscoWorks Health and Utilization Monitor](#)

Multicast Management

[Cisco Multicast Manager](#)

WAN Management

[Cisco WAN Manager](#)

## Security and Identity Management

[Cisco Access Registrar](#)

[Cisco Network Registrar](#)

## Video, Cable and Content Delivery Management

[Cisco Broadband Access Center](#)

## Wireless Access Management

[Cisco Mobile Wireless Transport Manager](#)

Mobile Wireless Center for Cisco Mobile Exchange

[Cisco Content Services Gateway Service Manager](#)

[Cisco GPRS Gateway Support Node Service Manager](#)

[Cisco Home Agent Service Manager](#)

[Cisco Mobile Wireless Center for Cisco Mobile Exchange](#)

[Cisco Mobile Wireless Fault Mediator](#)

[Cisco Packet Data Serving Node Service Manager](#)

# Einteilung in Marktsegmente

Service Provider



Enterprise



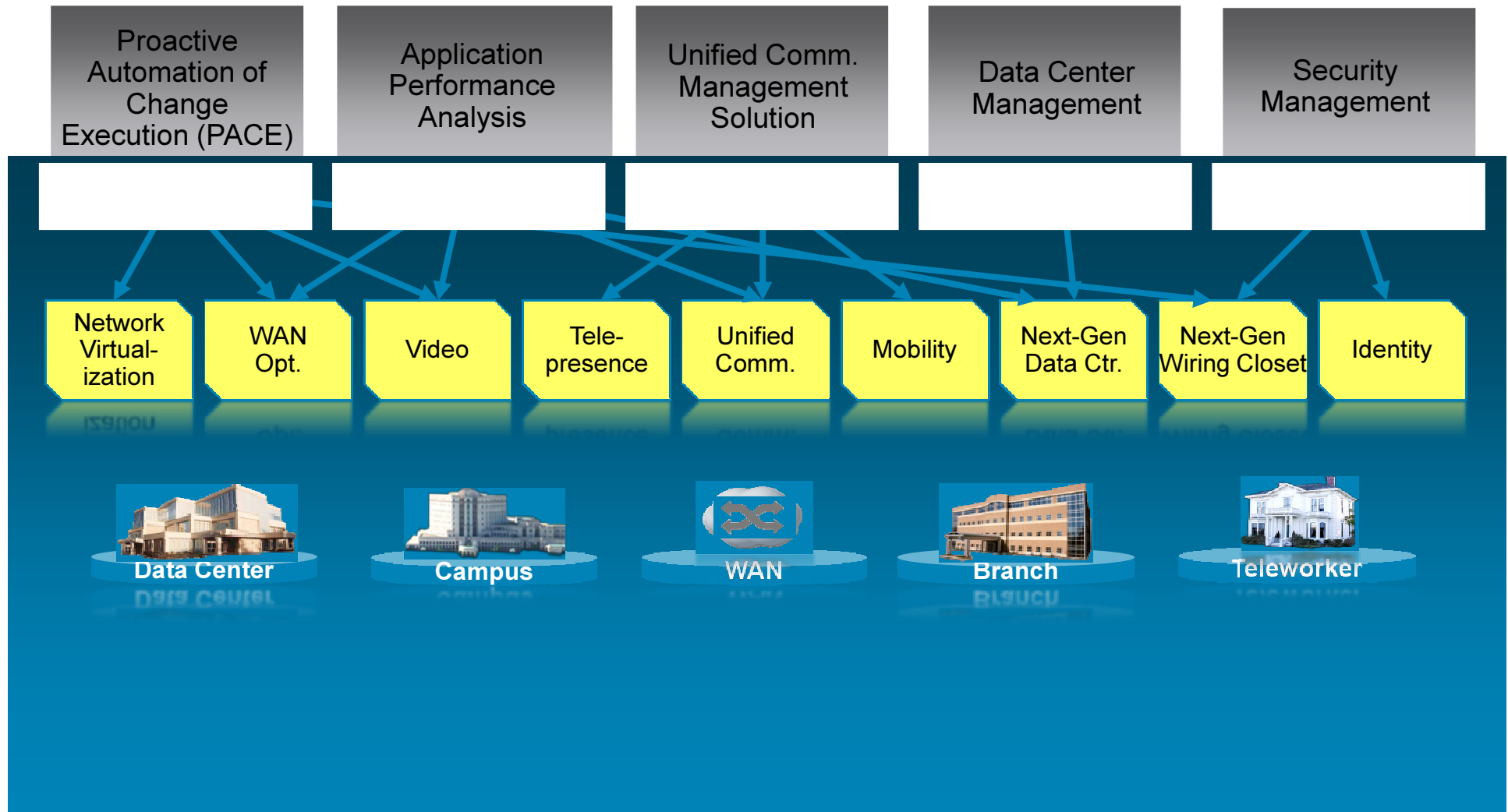
Commercial/ SMB



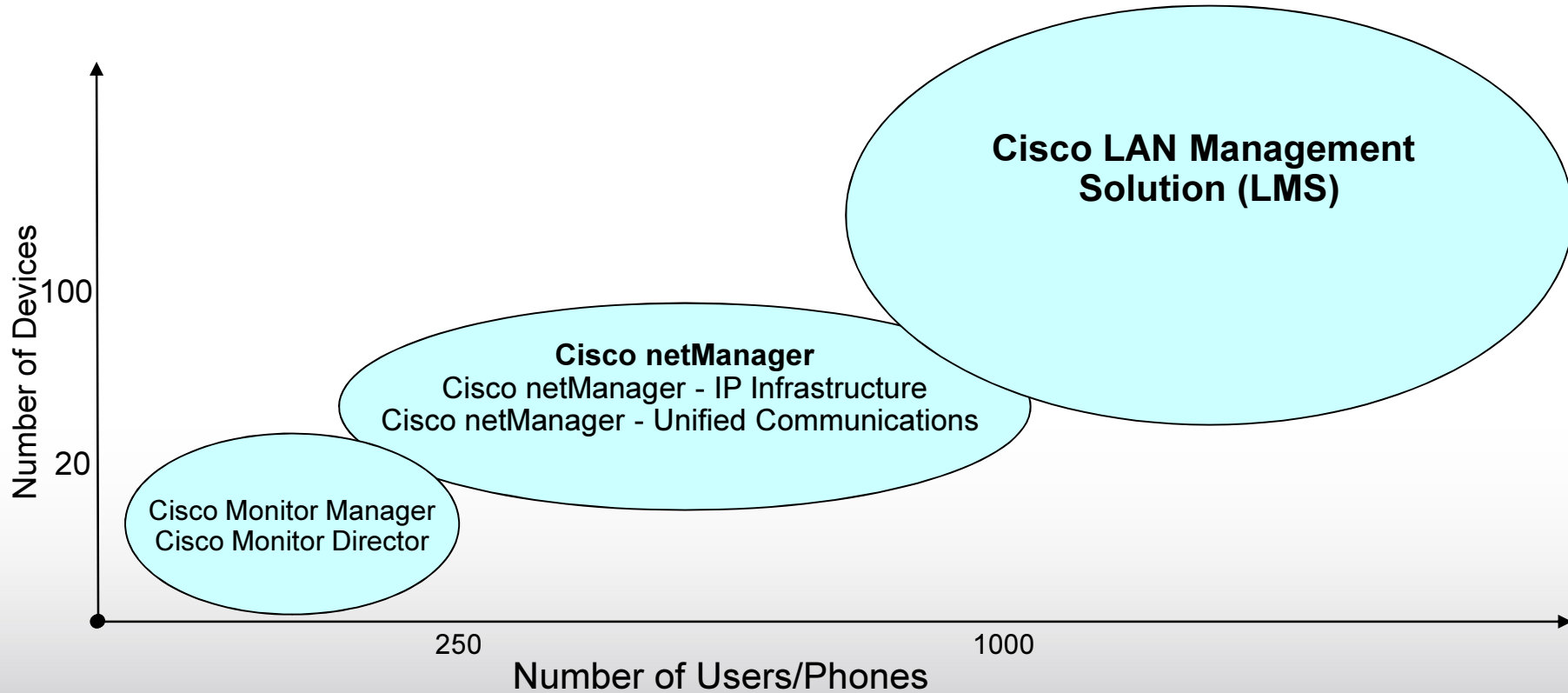
Value Added Resellers

Managed Service Providers

# Enterprise Management



# LAN Management

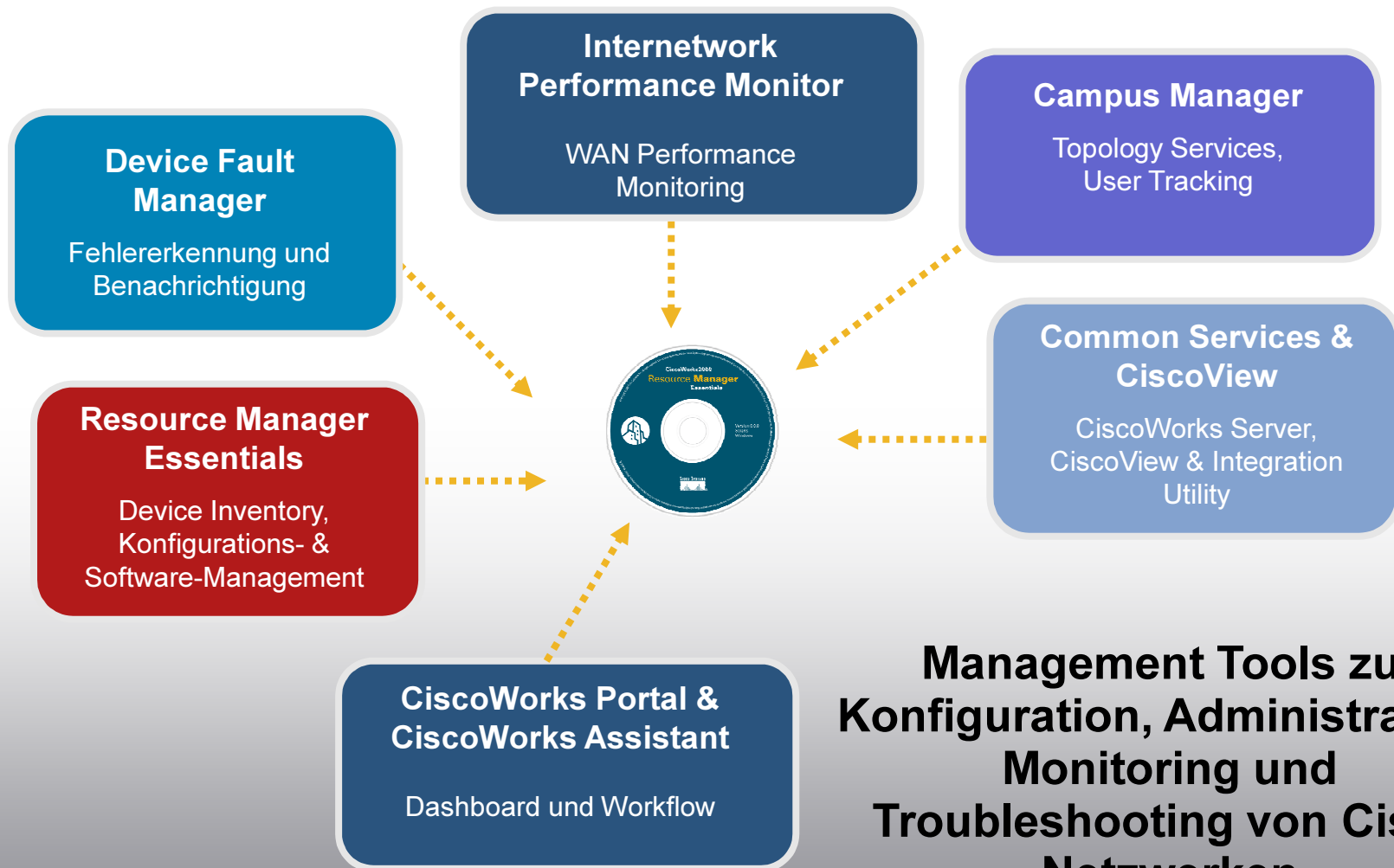


Partner Delivered  
Management

Customer Self Management



# LAN Management Solution (LMS)



# CiscoWorks Portal

- Portlet für Alarm-Übersicht
- Top Use Cases Demo Workflow Portlet für jede Appl. (27 neue Demos)
- RME Portlets
  - Technology Portlet (links zu GOLD, EEM)
  - Syslog Summary Portlet
  - Syslog Messages Portlet
  - Top N Syslog Sender Portlet
- HUM Portlets
  - Verbesserungen im Histo-GraphIt Portlet
  - Top-N POE Utilization Portlet
  - Trend Watch Portlets
  - Live-GraphIt Portlets
  - Custom Top 'N' records

## CiscoWorks Portal & CiscoWorks Assistant

Dashboard und Workflow



# CiscoWorks Assistant und CiscoView

- CiscoWorks Assistant
  - Verbesserungen des Troubleshooting Workflows mit Diagnosen (GOLD, EEM)
  - Neuerungen im Setup Workflow
- CiscoView
  - IPv6 Support
  - Campus Manager Cross-Launch

**CiscoWorks Portal &  
CiscoWorks Assistant**

Dashboard und Workflow

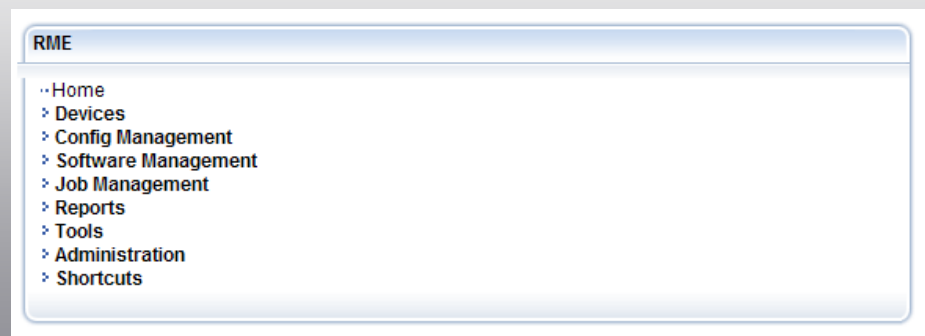


# Resource Manager Essentials

- PoE und ePoE Konfiguration und Reporting
- SmartPort und Auto SmartPort Macro Management
- CISF Konfiguration und Reporting
- GOLD Test-Scheduling auf Modulebene
- Generische/Adhoc Portkonfiguration
- FPM Paketverteilung
- **EOS/EOL Reports für Software-Images**

## Resource Manager Essentials

Device Inventory,  
Konfiguration &  
Software Mgmt

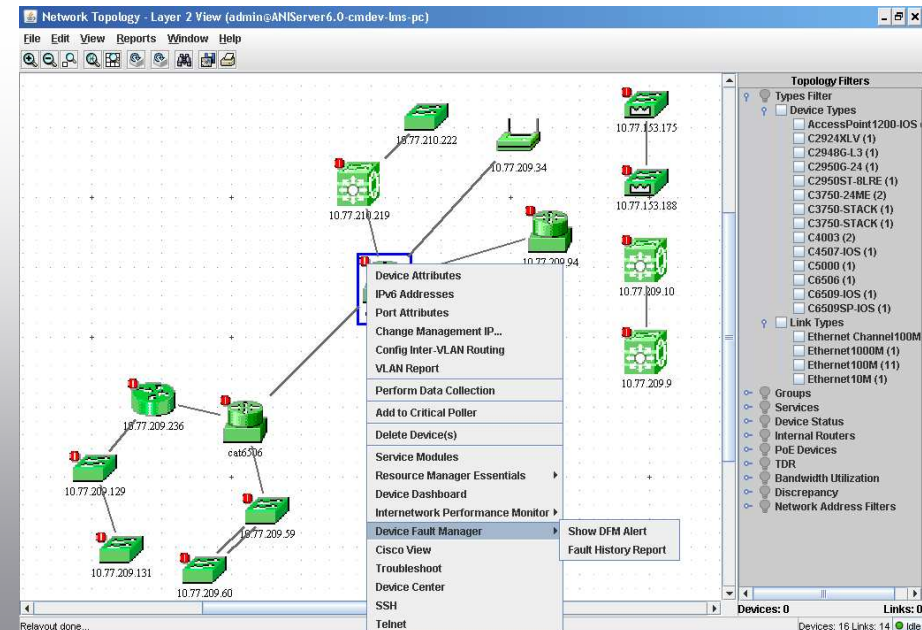


# Campus Manager

- Link Ports in Port Usage Reports
- Verbesserungen der Skalierbarkeit der Data Collection
- Topology Maps zeigen IPSLA Statistik

## Campus Manager

Topology Services,  
User Tracking



# Device Fault Manager

- PoE MIB-Polling und Traplistening
- **SNMPv3 AuthPriv Support**
- 10 G grouping Support

## Device Fault Manager

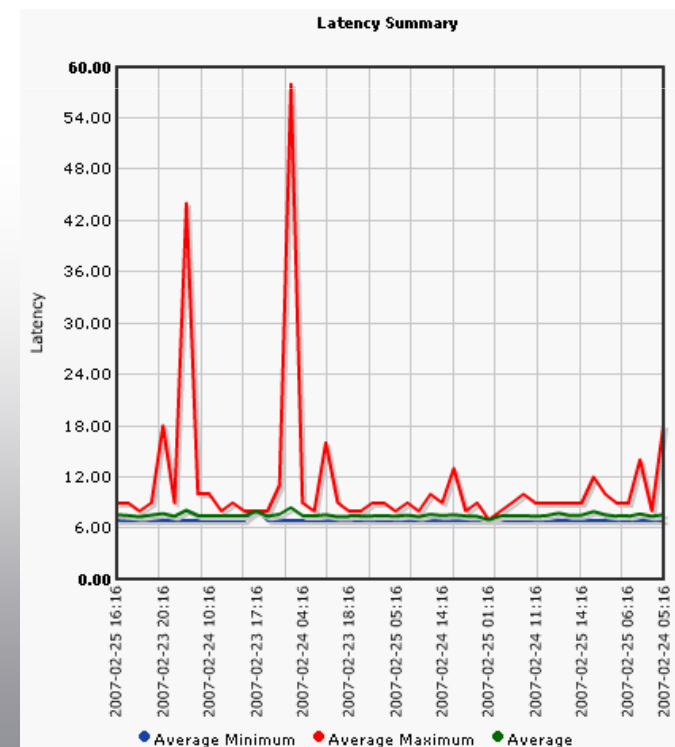
Fault Detection und  
Notification



# Internetwork Performance Monitor

- VRF IPSLA Operations (mit VNM Drop-In)
- Support für Planned Network Outage Reports
- Syslog Konfigurationen für Schwellwertverletzungen der Kollektoren
- Exportierbare Grafiken
- Email-Nachrichten für Reports

Internetwork  
Performance  
Monitor  
WAN Performance  
Monitoring



# CiscoWorks Portal Framework

- Multi Community Support
- Embedded Layouts enabled
- “Read only” und “Default” Views
- Portal Content zugreifbar über URLs
- View Remove Button für Custom/User Views
- Child View Support

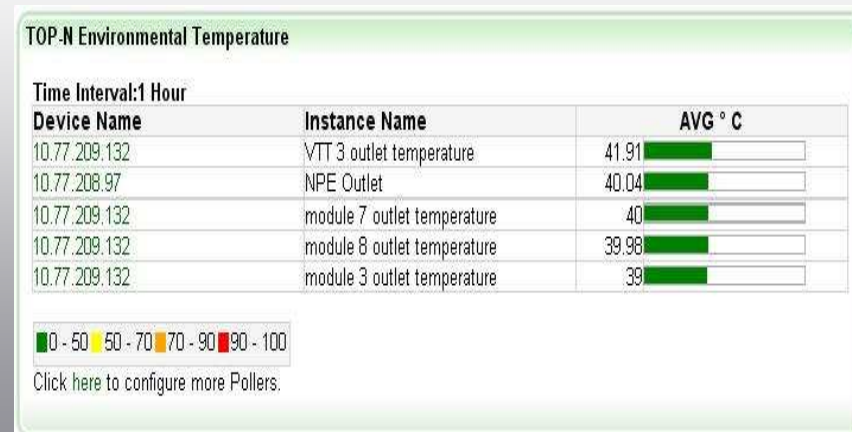
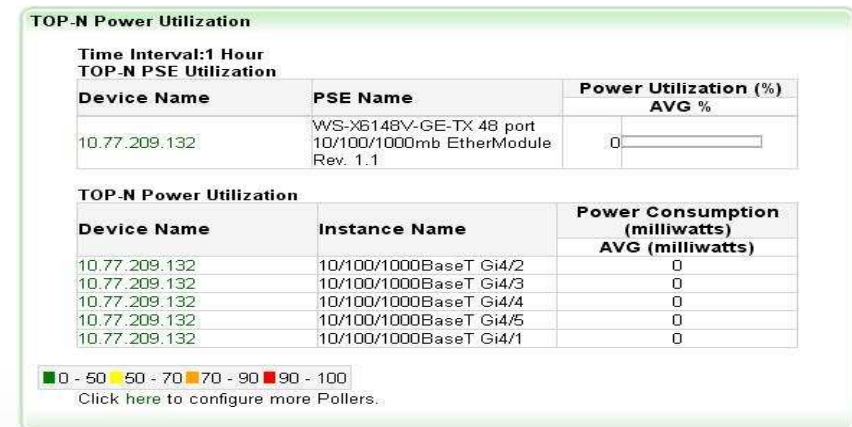
**CiscoWorks Portal &  
CiscoWorks Assistant**

Dashboard und Workflow  
für common tasks



# Health and Utilisation Monitor

- PoE Monitoring
- Trend-Watch Support
- Overlay Grafiken
- Interface Instanz Auswahlmöglichkeit
- Trap und syslog Support
- Non-historical Threshold Support
- Advanced Histo-GraphIt Portlet
- Top-N Portlets für benutzerdefinierte Daten
- Environmental Portlet

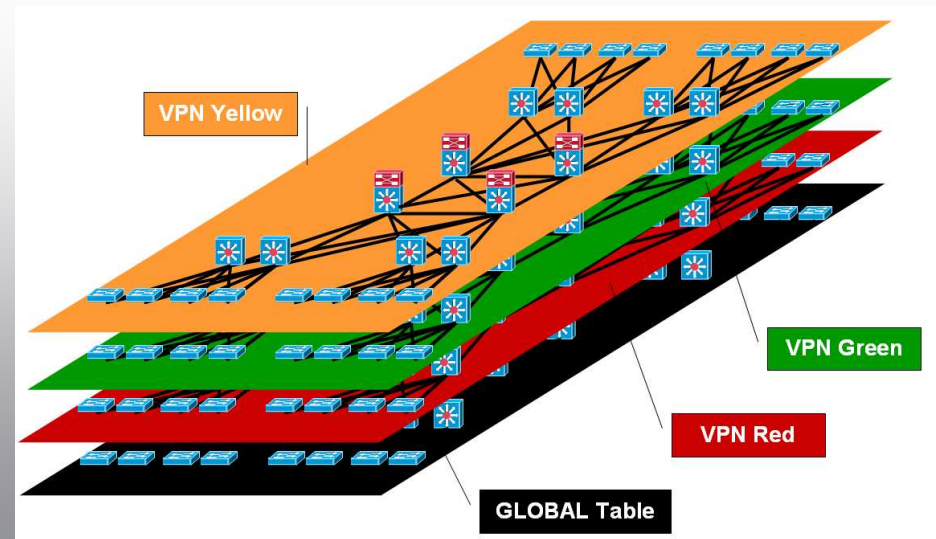


# Virtual Network Manager (VNM)



# Was ist Virtual Network Management?

- “Enabler” für Netzwerk-Virtualisierung im Enterprise Campus
- Phase 1 unterstützt Netzwerkmanagement für Ende zu Ende VRF Lite
- Unterstützung für VNETs, VRF/GRE tunneling und weitere Virtualisierungstechnologien für
  - Path Isolation
  - Access Control
  - Shared Services



# Virtual Network Manager (VNM)

CiscoWorks | Help | About



**Virtual Network Manager**  
Home Reports Troubleshooting Administration

You Are Here [Home](#)

[Switch to full screen/normal mode](#)

## Virtual Network Manager Home

Auto Refresh

Version : 1.0.0

Last Updated: 04 May 2009, 16:32:29 IST

VRF Collection Status				
Operation	Last Completion Time	Result	Status	Action
VRF Collector	04 May 2009, 16:21:05 IST	92 VRF(s)	Idle	<a href="#">Start VRF Collection</a>

VRF Readiness Information	
<b>VRF Capable Devices</b> [HW Supported, SAV Update Required] :	3
<b>VRF Supported Devices</b> [ HW and SAV Supported] :	5

Recently Completed Jobs				
Job Id	Job Type	Description	Status	Completed At
1024.0	VRF Collector Job	VRF Collecto...	Succeeded	04 May 2009, 16:21:05 IST
1023.0	VRF Collector Job	VRF Collecto...	Succeeded	04 May 2009, 16:17:36 IST
1022.0	VRF Collector Job	VRF Collecto...	Succeeded	04 May 2009, 16:13:07 IST
1021.0	VRF Collector Job	VRF Collecto...	Succeeded	04 May 2009, 16:09:25 IST
1020.0	Device Based VRF Report	Device Based...	Succeeded	04 May 2009, 14:55:45 IST
1019.0	VRF Based Report	VRF Based Re...	Succeeded	03 May 2009, 15:10:29 IST
1018.0	Device Based VRF Report	Device Based...	Succeeded	03 May 2009, 15:05:32 IST

## VRF List

Showing 1-5 of 92 records

	VRF Name	VRF Description	Number Of Devices
1. <input type="radio"/>	<a href="#">Blue_berry</a>	Discovered by VNM	1
2. <input type="radio"/>	<a href="#">testing123</a>	Discovered by VNM	1
3. <input type="radio"/>	<a href="#">rp_chg_test</a>	Discovered by VNM	2
4. <input type="radio"/>	<a href="#">SaiVRF</a>	Discovered by VNM	1
5. <input type="radio"/>	<a href="#">Reproduce_coll</a>	Discovered by VNM	1

Rows per page:

Go to page:  of 19 Pages [Go](#)

Select an item then take an action -->

- [Edit VRF](#)
- [Extend VRF](#)
- [Delete VRF](#)
- [Show Details](#)
- [Assign Edge Vlan](#)
- [Create VRF](#)

# VNM Beispiel: Create VRF – Step 1

CiscoWorks | Help | About

**Virtual Network Manager**

Home | Reports | Troubleshooting

VRF Home

You Are Here > Home > VRF Home > Create VRF

**Mode: Create**

- 1. Create VRF
- 2. Interface to VRF Mapping
- 3. Routing Protocol Configuration
- 4. Summary

### Create VRF

#### Device Selector

<<Search Input>> [Search] [Add]

All	Search Results	Selection
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		

- All Devices
- Device Type Groups
- User Defined Groups
- Campus

#### VRF Details

VRF Name: *	RED
Route Distinguisher: *	10:1
Description:	Red vrf for HP

# VNM Beispiel: Create VRF – Step 2

**Mode: Create**

- 1. Create VRF
- 2. Interface to VRF Mapping
- 3. Routing Protocol Configuration
- 4. Summary

**Interface to VRF Mapping**

**Warning:**

- 1. One Interface is not configured as Trunk
- 2. Some of the selected device(s) are Isolated

**VRF Name: Red**

Source			Destination					
Interface	is Trunk	IP Address	Device Name	Interface	is Trunk	IP address	VLAN	VRF
<b>c6509ios</b>								
<input checked="" type="checkbox"/> Fa1/2	true	10.77.10.10	RTP-6509	Fa2/1.1	true	10.77.2.2	VLAN101	*Red
<b>Chennai-6500</b>								
<input checked="" type="checkbox"/> Fa1/1.1	true	10.77.5.2	banglore-6500	Fa2/1	true	172.80.8.7	VLAN2	*Red
<input type="checkbox"/> Fa2/1.2	true	10.77.2.2	SJ-6506	Fa2/1	false	172.80.2.4	VLAN8	Unassigned

**Step 2 of 4 -**

[Show Map](#)

[<Back](#) [Next>](#) [Finish](#) [Cancel](#)

# VNM Beispiel: Create VRF – Step 3

The screenshot displays the Cisco Virtual Network Manager (VNM) interface. At the top left is the Cisco logo. The main title is "Virtual Network Manager". Below the title are navigation tabs: "Home", "Reports", "Troubleshooting", and "Administration". In the top right corner, there are links for "CiscoWorks", "Help", and "About".

The breadcrumb trail shows "You Are Here > Home". The current mode is "Mode: Create VRF". A sidebar menu on the left lists the steps: "1. Create VRF", "2. Interface Mapping", "3. Routing protocol Configuration" (which is highlighted), and "4. Summary".

The main content area is titled "Routing protocol Configuration". It contains a table with the following data:

S.No	Device Name	IP Address	Routing Protocol	Commands
1	10.77.241.4	10.77.241.4	OSPF <a href="#">View Global</a>	router ospf 123 vrf ada capability vrf-lite log-adjacency-changes network 129.0.2.1 0.0.0.0 area 0
2	10.77.241.6	10.77.241.6	OSPF <a href="#">View Global</a>	router ospf 51 vrf ada capability vrf-lite log-adjacency-changes network 10.0.0.0 0.0.0.255 area 0

At the bottom right of the table area, there is a "Restore Default" button.

# VNM Beispiel: Create VRF – Step 4

**Mode: Create VRF**

- 1. Create VRF
- 2. Interface Mapping
- 3. Routing protocol Configuration
- 4. Summary

### Summary

```
Device:10.77.241.6

  ip vrf ada
    description "VRF Created by LMS - VNM"
    rd 10:4242
  interface Gi4/43
    no switchport
    interface Gi4/43.31
      encapsulation dot1Q 3972
      ip vrf forwarding ada
      ip address 12.12.12.1 255.255.255.0
      no shutdown

  router ospf 51 vrf ada
    capability vrf-lite

    log-adjacency-changes
    network 10.0.0.0 0.0.0.255 area 0
Device:10.77.241.4

  ip vrf ada
    description "VRF Created by LMS - VNM"
    rd 10:4242
```

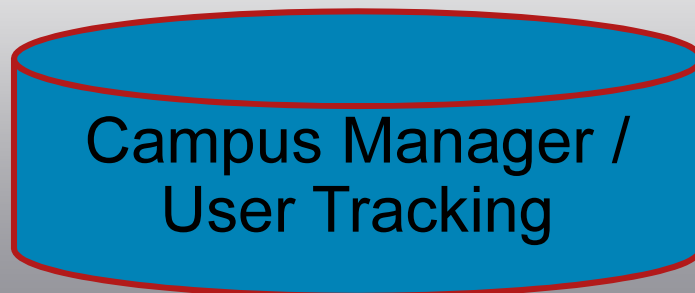
- Step 4 of 4 -

<Back Next> Finish Cancel

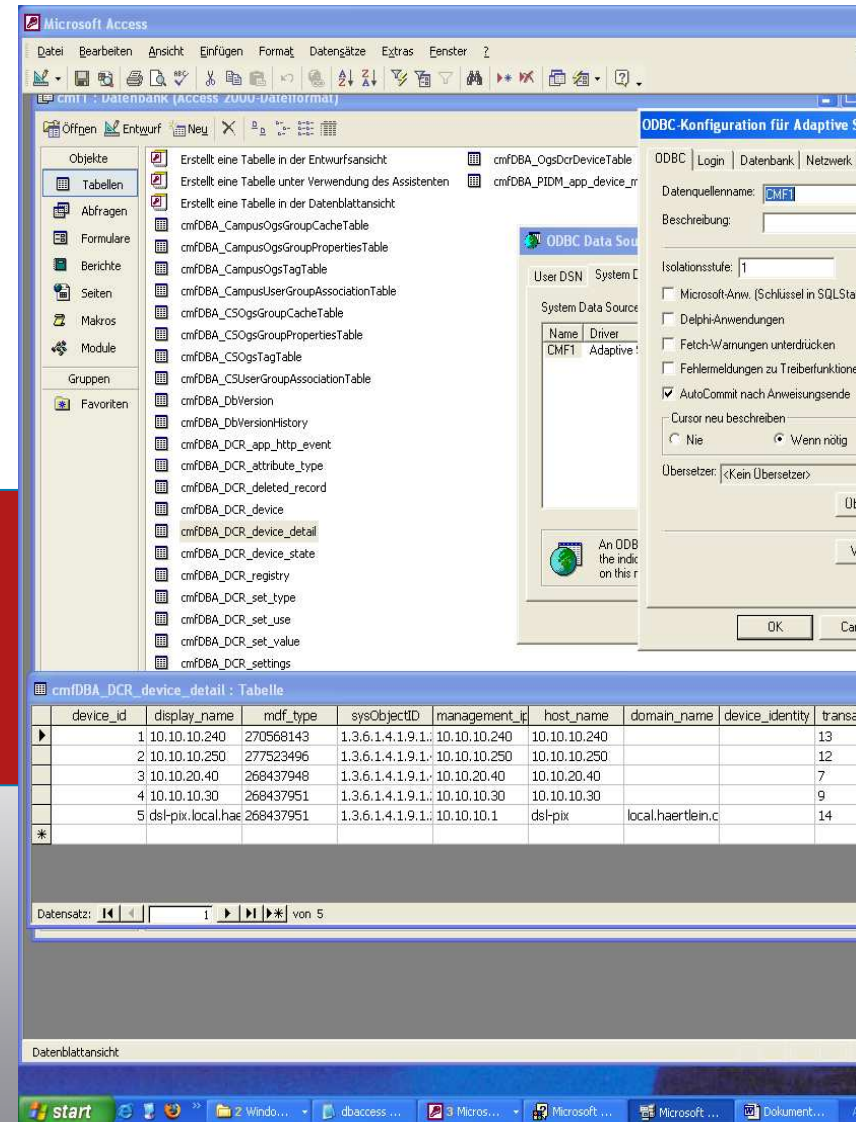
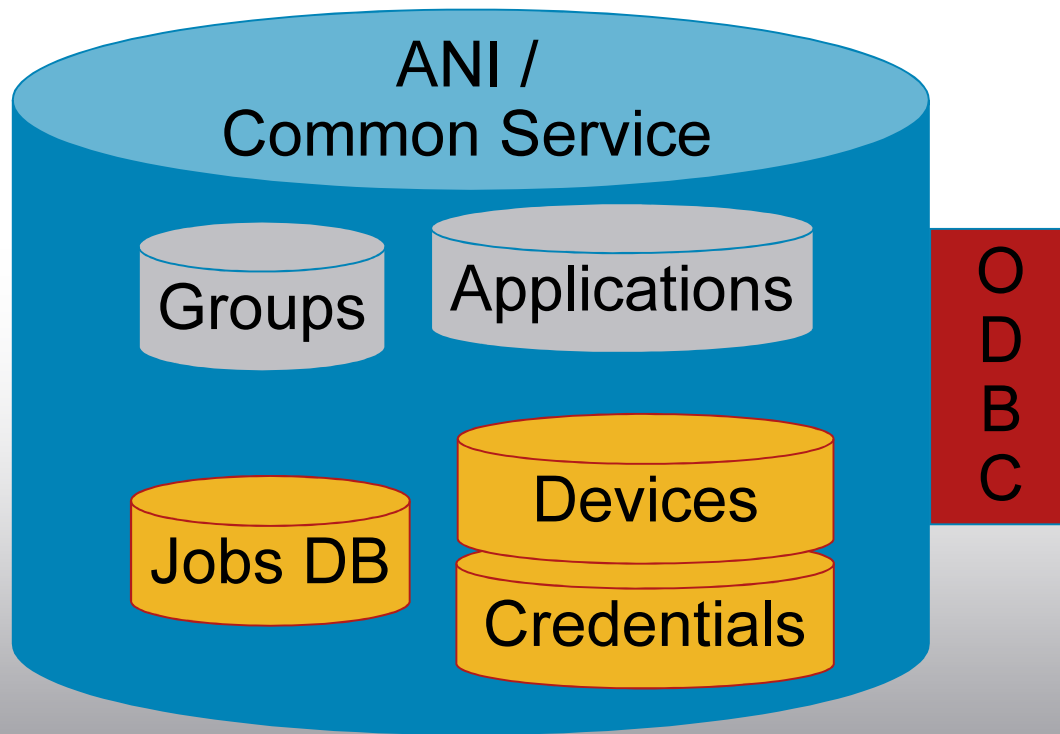
# Zugriff auf die Datenbank



## LMS 3.2 Datenbanken



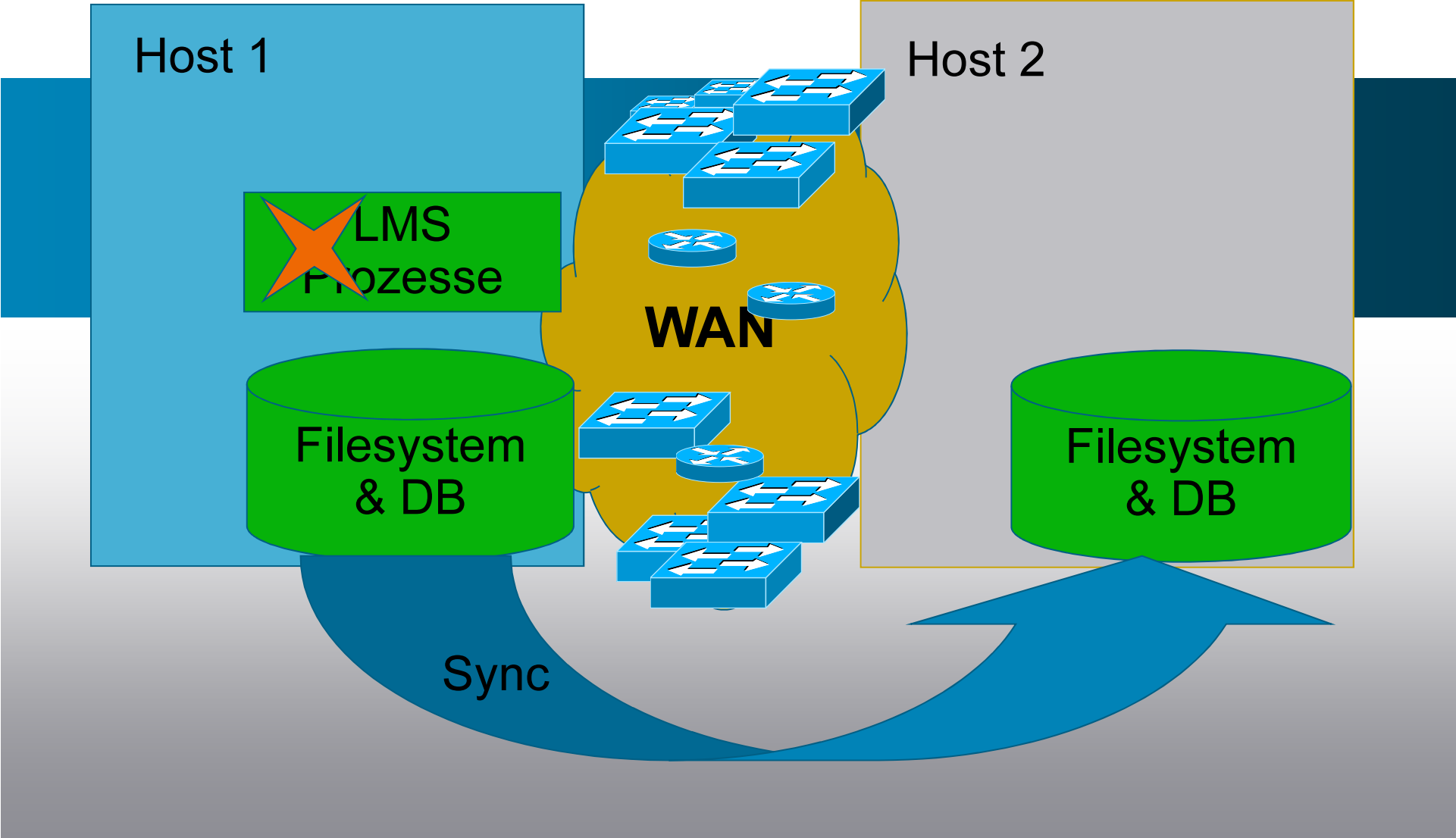
# LMS 3.2 Datenbanken



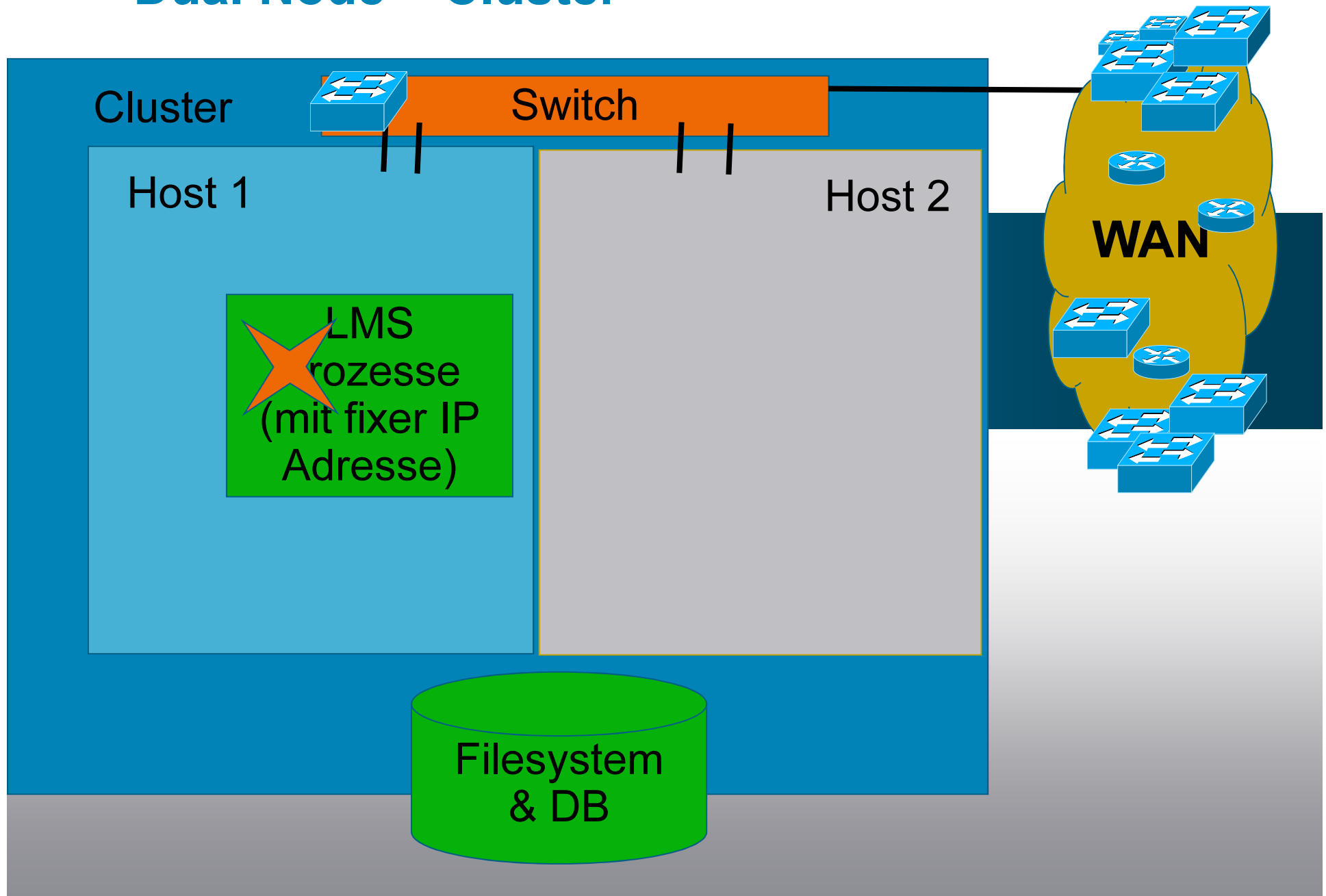
# Redundanz



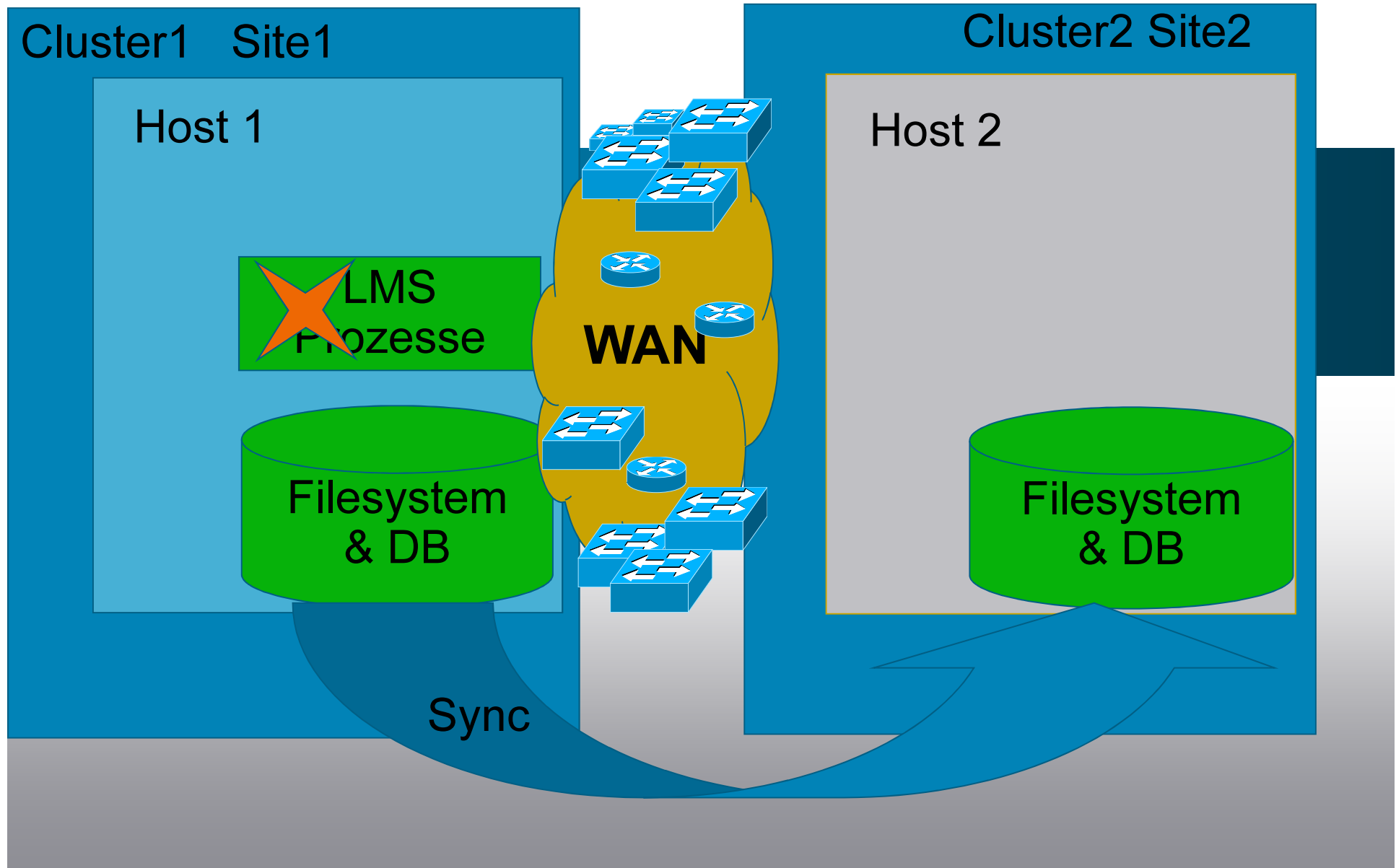
# Replikation ohne Clustering



# Dual Node – Cluster



# Remote Replikation mit Clustering

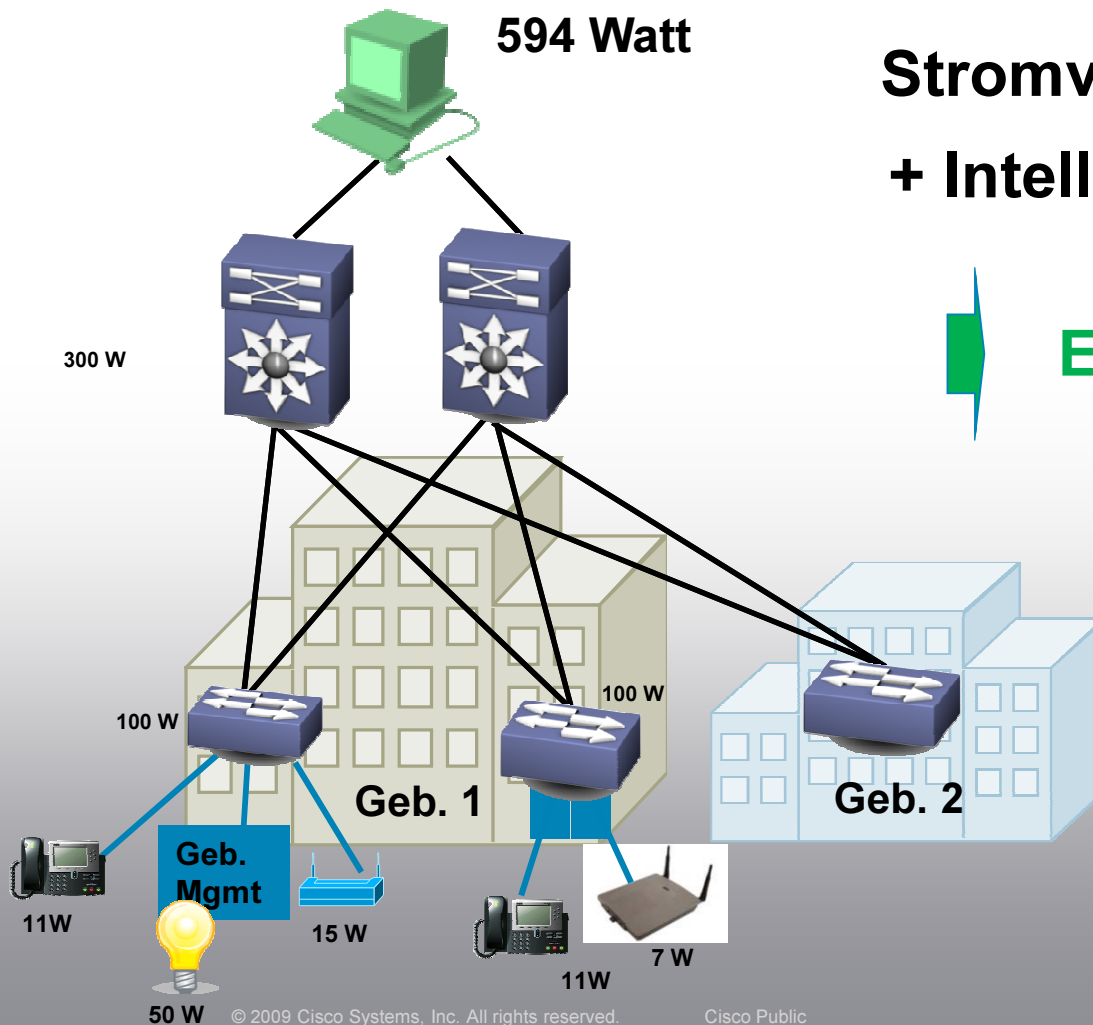


# Redundanz-Optionen

- Replikation ohne Clustering
- “Dual Node” in einem Cluster
- Disaster Recovery
- Für alle Optionen werden diese Lösungen verwendet:
  - Zur Erstellung und Konfiguration von Partitionen für LMS und andere wird VERITAS Enterprise Administrator (VEA) genutzt.
  - Zur Erstellung und Konfiguration des Replikationsnetzwerks wird VERITAS Volume Replicator(VVR) genutzt.
  - Zur Konfiguration des/der Cluster wird VERITAS Cluster Konfiguration Wizard und VERITAS Cluster Manager (Java Console) genutzt.



# Cisco EnergyWise Idee



**Stromverbrauch messen  
+ Intelligentes Management**

**Energiekosten sparend**

# Kalkulation: IP-Telefone abschalten

- Annahme

10.000 IP Phones à 11W

24h x 365 Tage in Betrieb

Stromtarif : 18 Cent / kWh

- Gesamtverbrauch für 10.000 Phones in einem Jahr

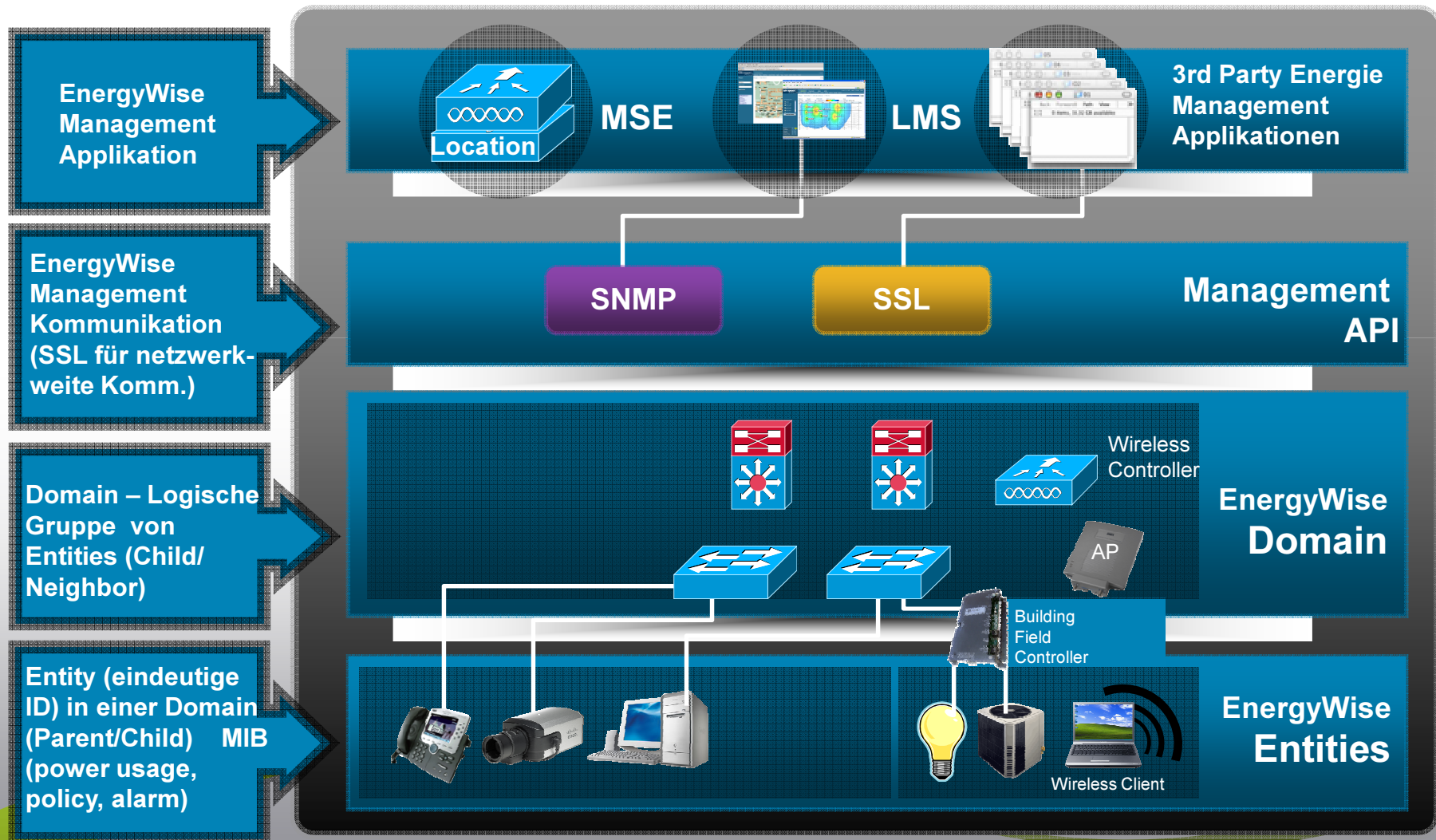
$10000 \times 11 \times 24 \times 365 = 963.600.000 \text{ Wh} = 963.600 \text{ kWh}$

$963.600 \text{ kWh} \times 0,18 \text{ Euro / kWh} = \mathbf{173.448 \text{ Euro pro Jahr}}$

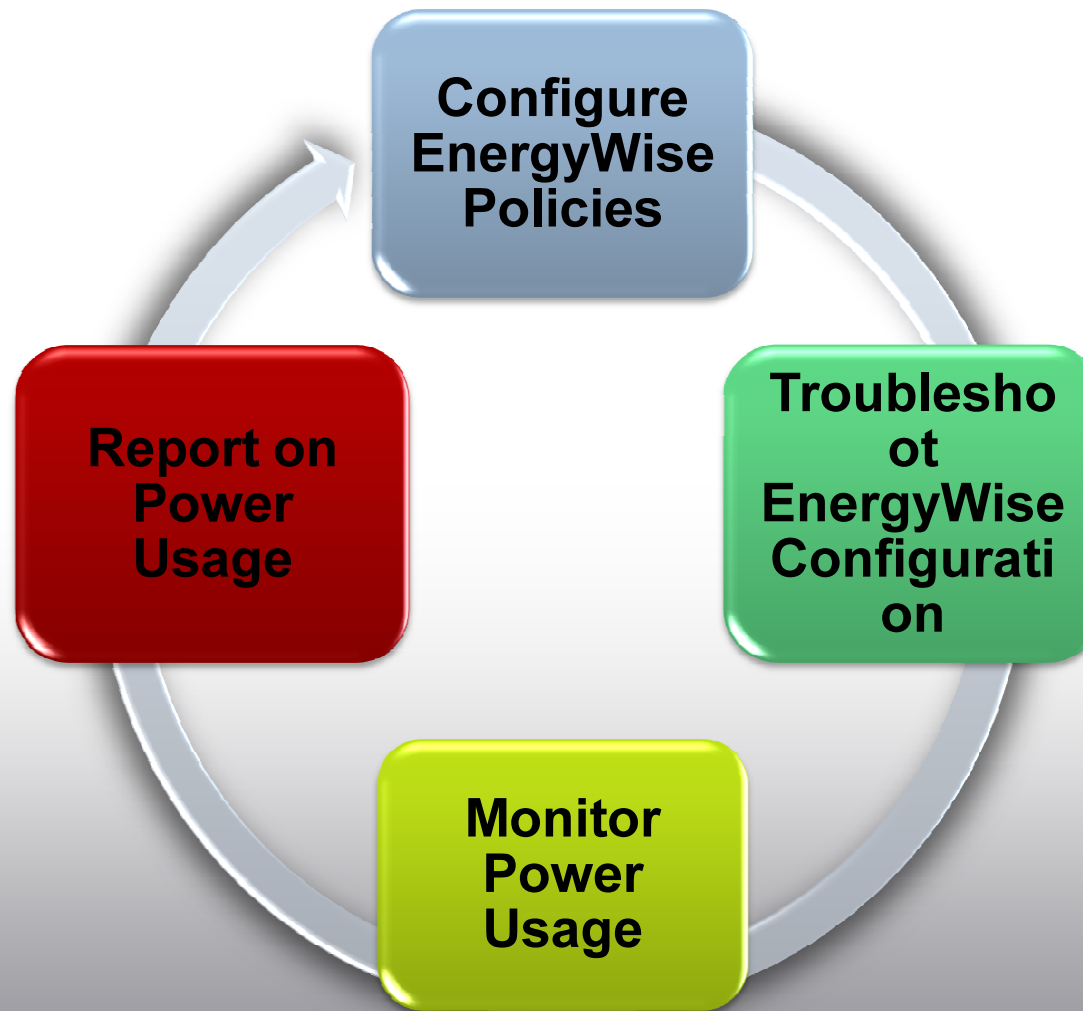
- Schaltet man die Verbraucher von 19:00 bis 07:00 (12h) ab, ergibt sich eine Ersparnis von

$173.448 / 2 = \mathbf{86.724 \text{ Euro}}$  ergeben

# Ein EnergyWise Netzwerk



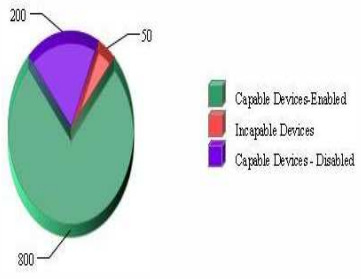
# EnergyWise Lifecycle



# EnergyWise Dashboard

## – Die Integration in LMS 3.2

### EnergyWise Service Availability



- Capable Devices-Enabled
- Incapable Devices
- Capable Devices-Disabled

### Top N Power Consuming Devices

Show 1 week 2 weeks 1 month 3 months YTD Customize View Details

Device Name	Average (watt/hour)	Max (watt/hour)	Min (watt/hour)
10.77.201.122	82	98	65
10.77.201.168	21	30	12
10.77.201.144	11	18	3
10.77.201.133	42	62	22
10.77.201.108	56	78	32

turned on in a day

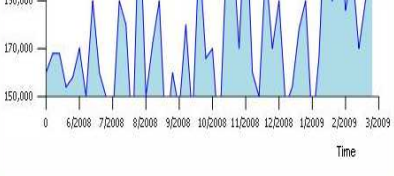
Duration for which Access Points would be turned off in a day: 0 hour(s)

Average power consumption of per IP Phone: 5 watt / hour

Average power consumption of per Access Point: 15 watt / hour

Power Cost per KiloWatt-hour: 0.20 US Dollars (USD)

Compute Savings



### Energywise Quick Links

- Provisioning/Configuration
  - EnergyWise capability and state (enabled/disabled) report
  - Enable EnergyWise at device level
  - Set EnergyWise attributes at device and port level
  - Configure EnergyWise policies at port level
- Reporting
  - Power Savings Calculator
  - Inventory report showing EnergyWise attributes
  - Interface Configlets
  - Templates for Power Monitoring
- TroubleShooting
  - Show commands for EW statistics

### EnergyWise Power Saving Calculator

Number of IP-Phones in the network:

Number of Access Points in the network:

Duration for which IP-Phones would be turned off in a day: 0 hour(s)

Duration for which Access Points would be turned off in a day: 0 hour(s)

Average power consumption of per IP Phone: 5 watt / hour

Average power consumption of per Access Point: 15 watt / hour

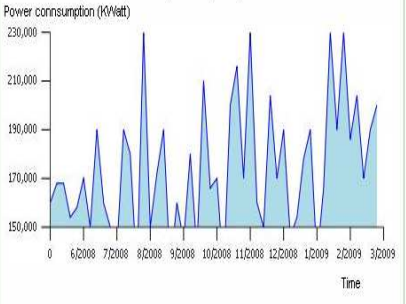
Power Cost per KiloWatt-hour: 0.20 US Dollars (USD)

Compute Savings

### Power Usage(ew-grp-1)

Show 1 week 2 weeks 1 month 3 months YTD Customize View Details

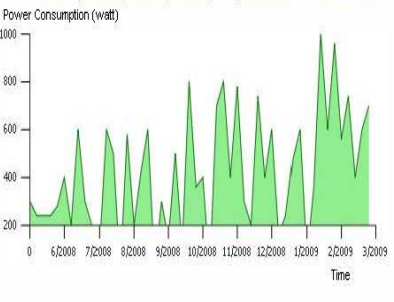
Power consumption (KWatt)



### Power Usage(10.77.210.204)

Show 1 week 2 weeks 1 month 3 months YTD Customize View Details

Power Consumption (watt)



### Energywise Quick Links

- Provisioning/Configuration
  - EnergyWise capability and state (enabled/disabled) report
  - Enable EnergyWise at device level
  - Set EnergyWise attributes at device and port level
  - Configure EnergyWise policies at port level
- Reporting

### EnergyWise Query

Domain Name: Production

Importance: 10 (Valid Range: 0-100)

Role: Phone

Keywords: Desktop-Phone

RealTime Query Generate RealTime Graph

# Regeln konfigurieren

The screenshot displays the Cisco Resource Manager Essentials interface for configuring EnergyWise rules. The main navigation bar includes Home, Devices, Config Mgmt, and Software Mgmt. The breadcrumb trail shows: You Are Here > Config Mgmt > NetConfig > NetConfig Jobs.

**Mode: ADDING**

- 1. Select Devices and Tasks
- 2. Add Tasks
- 3. Set Schedule Options
- 4. View Job Work Order

**Devices And Tasks**

**Device Selector**

<<Search Input>> [Search] [Add]

All Search Results Selection

All Devices

**EnergyWise Time Based Policies**

**Event 1**

Action: No Change (dropdown menu open showing: No Change, Configure Event, Delete Event)

Event Priority[0-100]: No Change

Set Level: [dropdown]

Hour: 00

Minute: 00

Day of Month [Eg 5,20-25,27]: [input]

Month [Eg 3,7-9,11]: [input]

Day of Week [Eg 0,2-4,6]: [input]

**Event 2**

Action: No Change

Event Priority[0-100]: [input]

Set Level: 0

Hour: 00

Minute: 00

Day of Month [Eg 5,20-25,27]: [input]

Month [3,7-9,11]: [input]

Day of Week [0,2-4,6]: [input]

Applicable Devices... [button]

Save Reset Cancel [buttons]

**EnergyWise**

**Enable/Disable EnergyWise**

Action: No Change (dropdown menu open showing: No Change, Enable, Disable)

EnergyWise Entity Domain\*: [input]

EnergyWise Entity Secret: [input]

Entity Keywords[Comma Separated]: [input]

Entity Role: [input]

00]

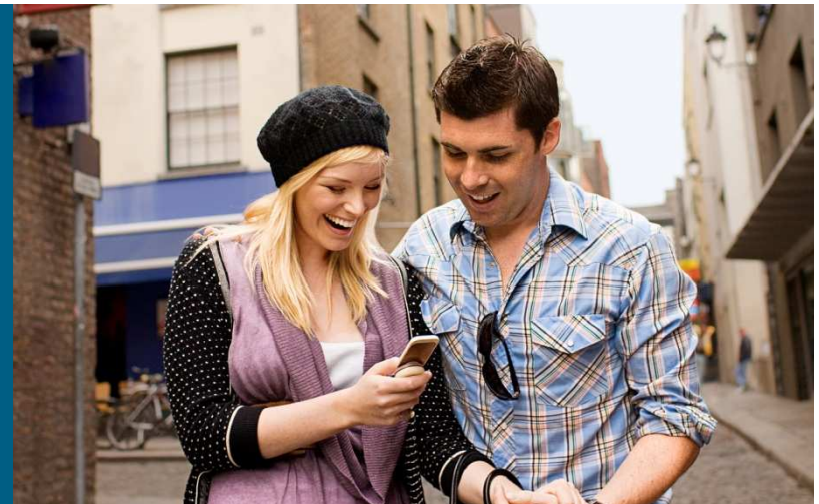
with different Domain/Secret will overwrite the existing Domain/Secret

Applicable Devices... [button]

Save Reset Cancel [buttons]

<Back Next> Finish Cancel [buttons]

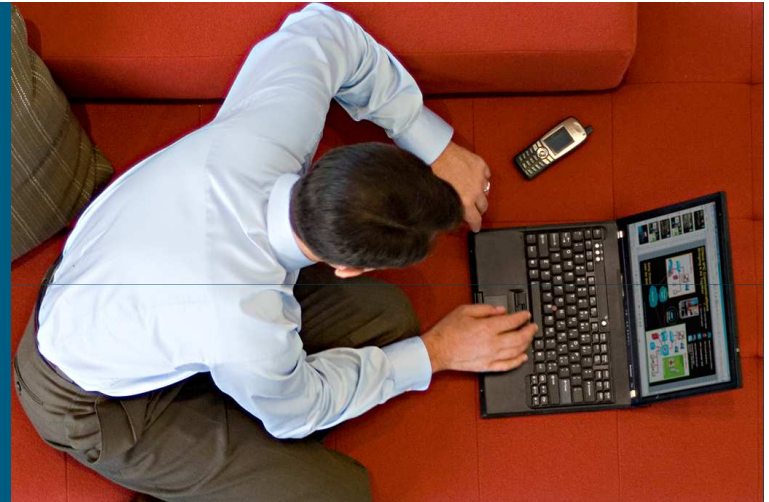
# Zusammenfassung



# Zusammenfassung

- Cisco bietet Ihnen ein umfangreiches **Angebot von Netzwerkmanagement-Systemen**, von Commercial/SMB über Mittelstand/Enterprise bis hin zu Service Provider Lösungen.
- LMS stellt Ihnen eine **Suite von Management-Tools** zur Verfügung, welche die **Konfiguration**, das **Performance Monitoring** und das **Troubleshooting** Ihres Cisco Netzwerks erleichtern!
- Einige der Highlights der neuesten **LMS Version 3.2** sind das Virtual Network Management, der Datenbankzugriff und die Möglichkeit des **Energie-Managements**.

Und jetzt:  
Fragen fragen



# Weitere Informationen



# Weitere Informationen

- Produktseite  
<http://www.cisco.com/go/lms>
- Product Bulletin  
[http://www.cisco.com/en/US/products/sw/cscowork/ps2425/prod\\_literature.html](http://www.cisco.com/en/US/products/sw/cscowork/ps2425/prod_literature.html)
- Supported Device List  
[http://www.cisco.com/en/US/products/sw/cscowork/ps2425/products\\_device\\_Support\\_tables\\_list.html](http://www.cisco.com/en/US/products/sw/cscowork/ps2425/products_device_Support_tables_list.html)
- EVAL copy  
<http://www.cisco.com/go/lms>
- White Papers  
[http://www.cisco.com/en/US/products/sw/cscowork/ps2425/prod\\_white\\_papers\\_list.html](http://www.cisco.com/en/US/products/sw/cscowork/ps2425/prod_white_papers_list.html)
- Release Notes  
[http://www.cisco.com/en/US/products/sw/netmgts/ps2425/products\\_Support\\_category\\_home.html](http://www.cisco.com/en/US/products/sw/netmgts/ps2425/products_Support_category_home.html)



