Checkmk
Conference

Guardrails at Scale

How DZ BANK Governs 500,000 Monitoring Services

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CEO, ITeratio GmbH

Heiko Wenzig
IT Specialist, DZ BANK

ITeratio GmbH who we are

ITeratio GmbH

- System and Network Management Specialists since 2001
- Based in Cologne
- Checkmk Partner since 2014

Hardy Düttmann

- Founder and CEO
- First Monitoring project in 1998 Tivoli Monitoring 2.6
- First Checkmk Project with OMD 0.4.0 in 2011

Heiko Wenzig

- Monitoring since 1993
- IBM (Tivoli) Monitoring until 2008
- Groundwork Monitoring from 2008 to 2020
- Checkmk User since 2020

The three pillars of the German banking sector

Public banking

5 state banks
350 savings banks
DekaBank

34%

Private banking

Deutsche Bank
Commerzbank
Foreign banks

<10% each

Cooperative banking

700 cooperative banks
1 central bank (DZ Bank)
Affiliated companies

24%

DZ BANK
Die Initiativbank

Schwäbisch Hall

R+V

TeamBank

VR Smart Finanz

Union Investment

DZ HYP

DZ PRIVATBANK

DZ BANK: Germany's second largest commercial bank

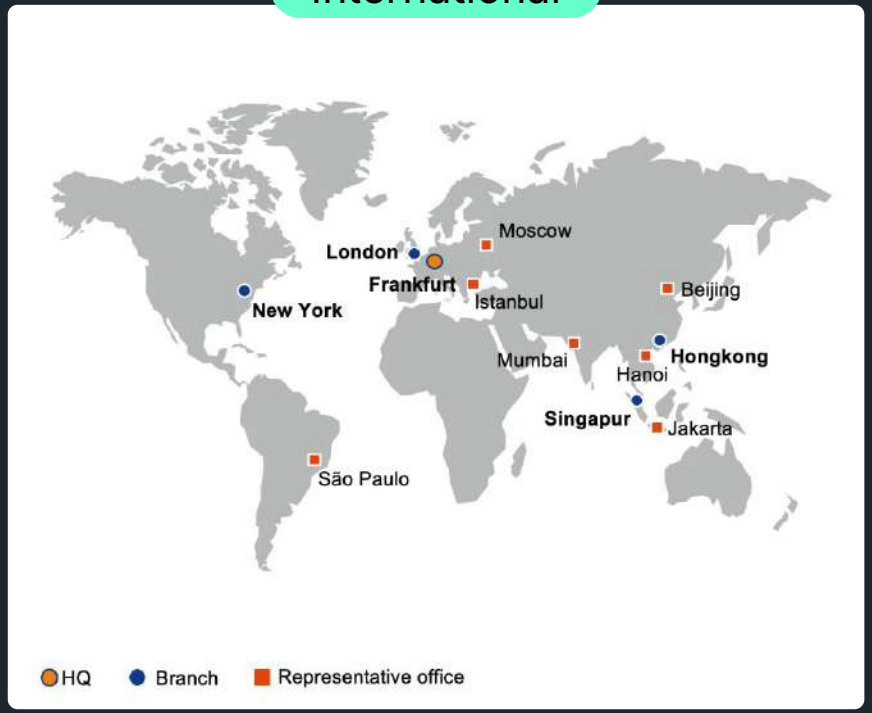
- Central institution for all cooperative banks
- Supports international business activities through global presence
- Holding company for entities in the DZ BANK Group

… more infos at: www.dzbank.com

DZ BANK - headquarter and branches

Regional

International



Some facts and figures

800

Users

40

Teams

50-70

Concurrent users

Some more facts and figures

15k

Hosts
(incl. 8.000
K8s)

**480
k**

Services,
and growing

70

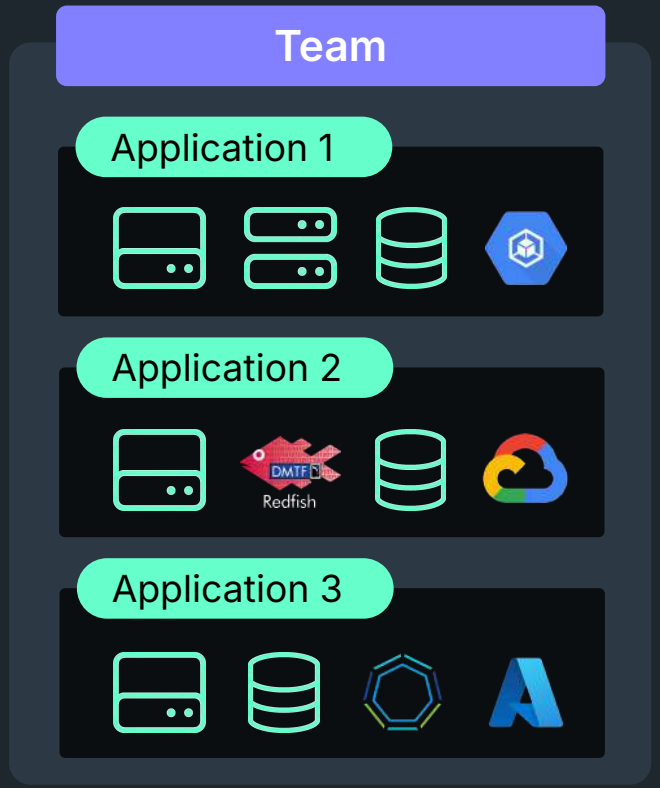
Customer
Specific
MKPS

2

Production
Monitoring
Environments

How 40 teams manage 400 applications

- Independent teams
- Multiple applications
- Heterogeneous cloud & on-prem infrastructure
- Monitoring



How do you monitor the infrastructure of a bank?

Multi-tenancy

- Configuration by team
- Role based access
- Targeted notifications

Automated

- On-premise
- Cloud Services
- Kubernetes (K8s)

Self-service

- Rules
- Views and Dashboards
- Local Checks

Checkmk @DZBANK

The logical architecture is based on teams and DZ BANK services

Team ABS

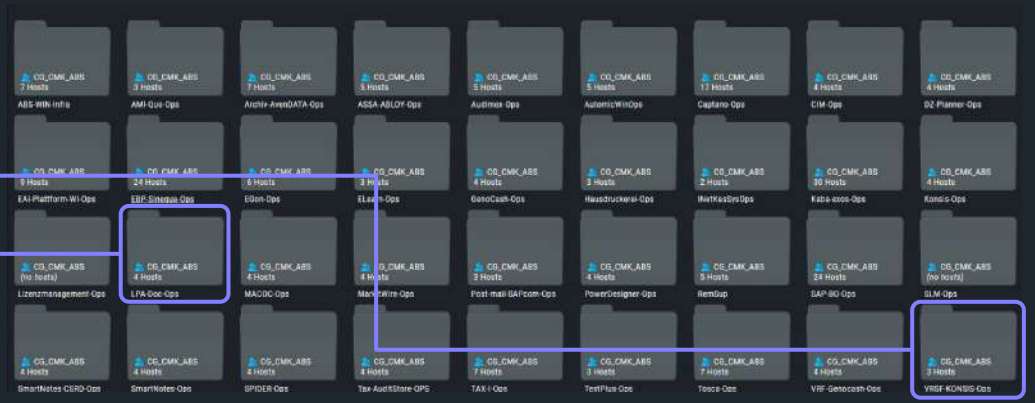
Team BAAR

Management via Contact group assignment on folder

DZ Service LPA-Docs

VRSF Service Konsics

Read only access - via rules



Notification problems and solutions

Reduce notification Rules for ServiceNow and Signl4

Notification problems and solutions

Reduce notification Rules for ServiceNow and Signl4

Rules in folder Main / DZB / ABS / Archiv-AvenDATA-Ops (1)

#	Actions	Conditions	Value
0		Service name begins with **Process Java** or **Process Sensemaker**	signl4:yes

Rules in folder Main / DZB / ABS (3)

#	Actions	Conditions	Value
0		Service name begins with **Mount options**	signl4:crit, signl4_bulk:host, snow_bulk:host
1		Service name begins with **Filesystem**	signl4:crit
2		Service name begins with **Multipath**	snow_bulk:dzservice

Passwords

Setup > General > Passwords

Password | Display | Help | Fi

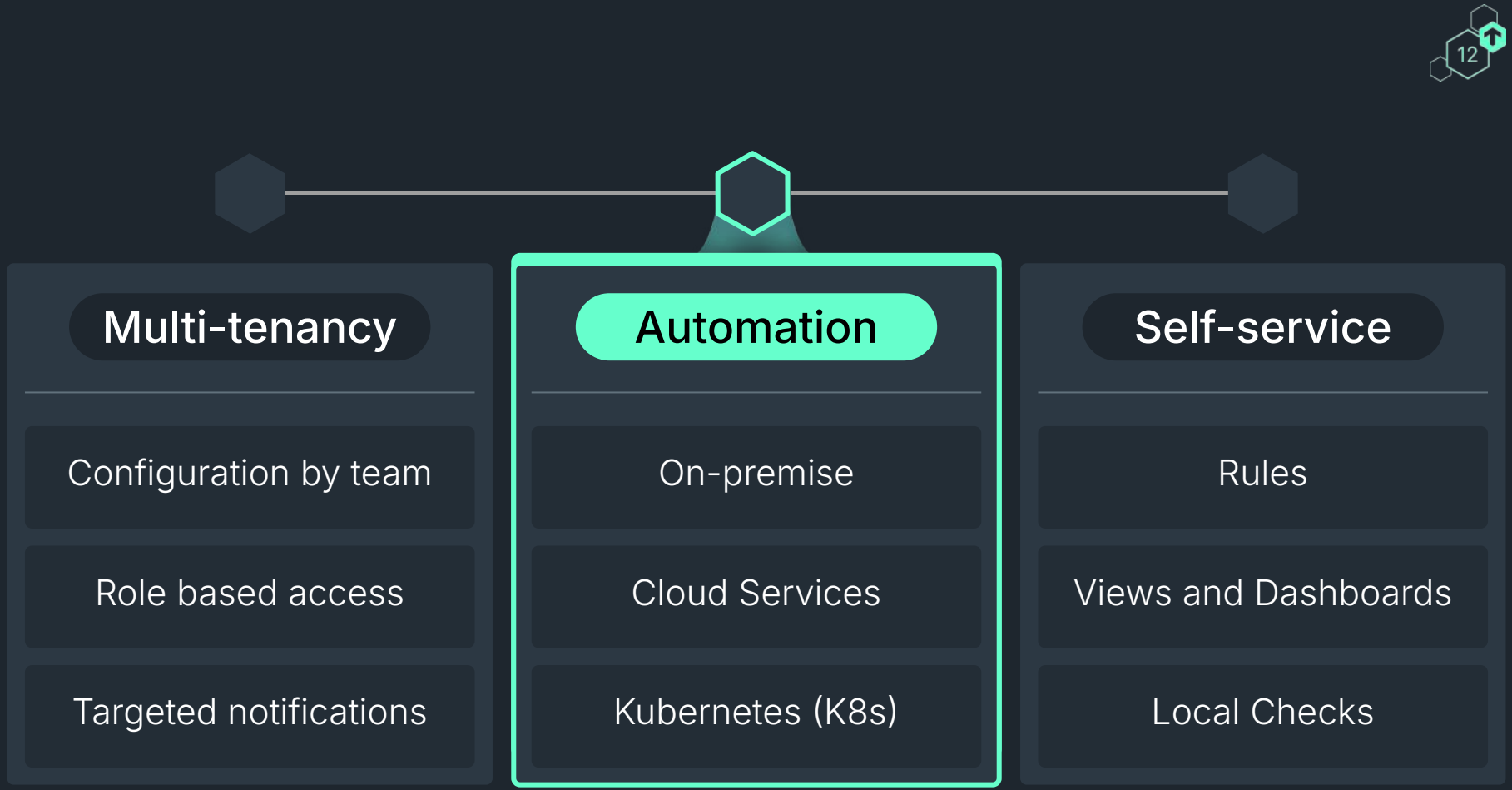
Add password

29		signl4key_ABS
30		signl4key_BAAR

CA_SERVICE	CIM-Ops
CA_SERVICE_VK	V0
CA_STATUS	active
CA_SUBTYPE	Windows Server
CA_TEAM	ABS
CA_TYPE	Windows Server

Enabled (active on this site)

Actions	Name	Version	Title
	dz_servicenow_eai	0.2.9	DZ ServiceNow Notification via EAI
	dzsignl4	1.4.1	Special DZ Signl4 Notification Plugin


Multi-tenancy
Configuration by team
Role based access
Targeted notifications
Automation
On-premise
Cloud Services
Kubernetes (K8s)
Self-service
Rules
Views and Dashboards
Local Checks

Fully automated - device types

On-Prem

- 3000 Server VMs
- 370 ESX Server
- 200 HW Servers

Google Cloud

- 500 Server GCE
- 900 Cloud Service

Azure Cloud

- 2300 Vms/Workstations
- 100 Cloud Services
- 350 App registrations

- 2500 Database Instances (Oracle, MSSQL, Postgres)
- ~130 Kubernetes Cluster

Fully automated - onboarding

Agent Installation

1. Agent Package rollout
2. Updater registration
3. Agent creation in folder NEW-AGENTS

Agent Assigning

1. Agent movement to DZ Service
2. Tags, Labes, Custom Attributes enrichment
3. TLS Registration

Operation

Complete DZ Team Management and Configuration

Other Assignments

1. Direct Assignment of agentless systems
2. Piggyback or Contact Groups assignment of DBs & storages

Fully automated - cloud monitoring

How to Onboard 520 GCP Projects for 40 teams

Custom GCP Monitoring

Google Cloud Platform (GCP) DZB-Edition

- Automatic Host & Rule Creation
- Agent enhancement Authentication via Conjour

How 7 Azure Subscription for 40 Teams an lot's of DZ Bank services

Custom Azure Monitoring

Microsoft Azure DZB Edition

- Piggyback Creation and automatic host creation based on DZ Services
- **Additional checks:** app_gateways, azurefirewall, expressroutecircuits

Fully automated - K8s

How to manage about 100 K8s clusters

X Manual configuration is complex and error prone

X 20.000 Changes per day and lot's of activation

Cluster	Datasource	CPU resources	Memory resources	Running pods	Worker nodes	Version
dcgsi-harissa	OK	6.16	235.83 GiB	3 638	260	v1.33.5-gke.2469000
dcgsp-harissa	OK	3.56	200.68 GiB	290	15	v1.33.5-gke.2392000
dcgst-harissa	OK	8.49	520.84 GiB	1 057	52	v1.33.8-gke.1026000
dcgvd-0001-almnext	OK	1.03	3.99 GiB	52	2	v1.33.8-gke.1026000
dcgvd-genai-p-0	OK	1.04	19.5 GiB	214	5	v1.33.8-gke.1026000

Fully automated - K8s

How to manage about 100 K8s clusters

Terraform based provisioning of K8s Clusters

Separate K8s Checkmk Monitoring(2.4)Environments

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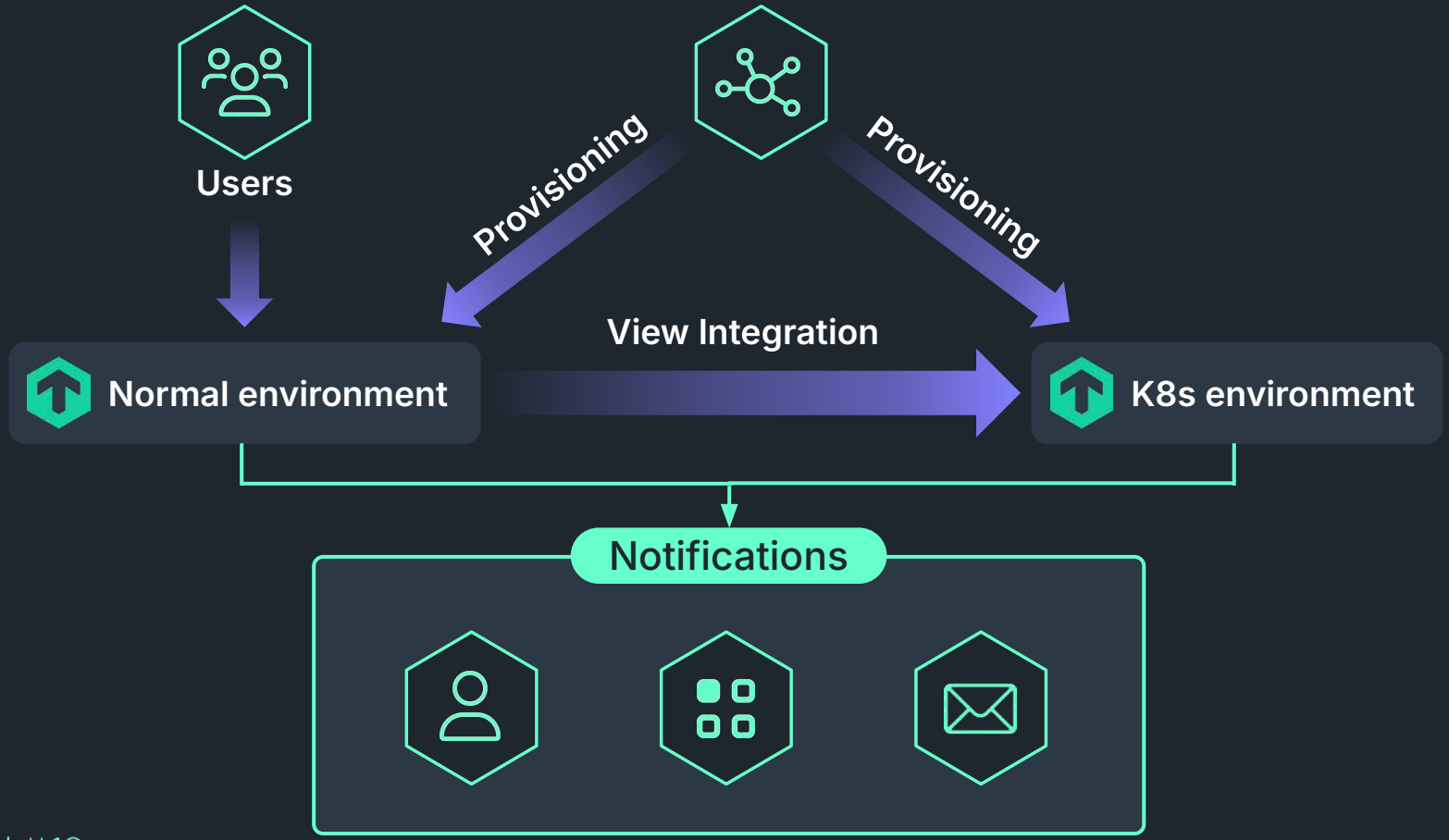
Users
Provisioning
Provisioning
View Integration
Normal environment
K8s environment
Notifications

Multi-tenancy

- Configuration by team
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Automation

- On-premise
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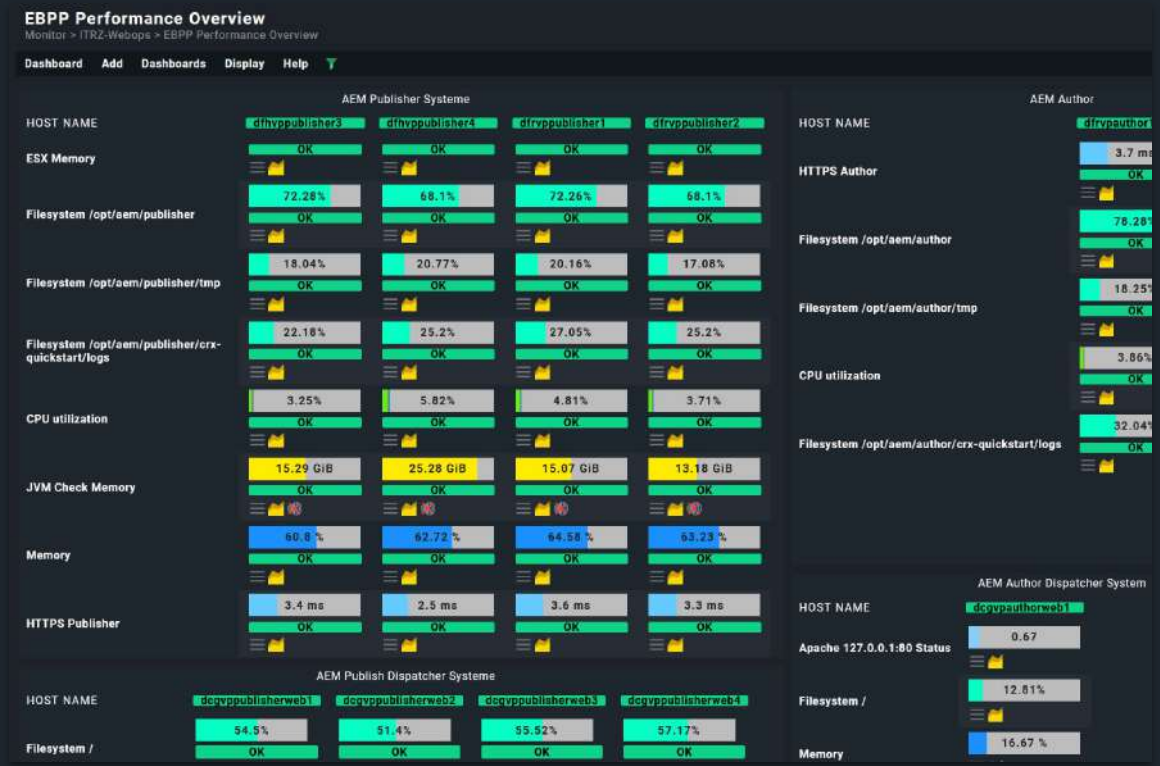
Self service

Each team should be able to configure everything independently

1. Monitoring
2. Plugins
3. Dashboards
4. Reports



Self service - Checkmk team

2 FTE

Checkmk Team

Regular

external operational support

1-2

Key players per team

Self service- tool success

Solutions

- Regular internal Checkmk workshops and training sessions
- Onboarding training for new employees
- Dedicated Checkmk key users within each team
- Continuous availability of the Checkmk team for support and questions

Looking back and next steps

Multi-tenancy

Automation

Self-service

Next: Network Monitoring

Checkmk Conference #12