ZABBIX SUMMIT ONLINE /2020

ZABBIX ADOPTION IN A BIG BANK ENVIRONMENT



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WE WILL SHOW YOU:

- THE BANK
- THE PREVIOUS MONITORING LANDSCAPE
- BANK REQUIREMENTS
- WHY ZABBIX?
- THE ZABBIX CENTRAL INFRASTRUCTURE
- ZABBIX TEMPLATES CUSTOMIZATION
- ZABBIX CONFIGURATION AND PROVISIONING
- ZABBIX SSO INTEGRATION WITH AD
- FOUND (AND SOLVED) ISSUES
- SOME FIGURES
- NEXT STEPS



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THE BANK

- Among first 10 largest bank in Italy for
  - branch network,
  - loans to customers
  - direct funding from customers
  - total assets
- Among first 25 European Banks
  - for market capitalization



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Existent Monitoring Landscape

- Twenty different monitoring tools
  - LibreNMS for networking
  - CheckMK for servers but Microsoft
  - Zabbix for some limited area inside DC
  - Oracle Enterprise Monitor
  - SCCM
  - Many custom monitoring (periodic plain counters, direct html pages access, complex dashboards, etc.)
- Alerting sending mails to hundreds people
- No central monitoring, distributed efforts

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Bank Requirements

- Single pane of glass for two DCs and branches devices
- Increased monitoring capabilities
- Secured environment (encryption end to end)
- More automation and audit features
- Separate DCs monitoring from branches
- No direct monitoring: all traffic via Zabbix Proxy
- Revised and improved alerting schema/escalation
- Parallel with CheckMK and LibreNMS for some time



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Why Zabbix?

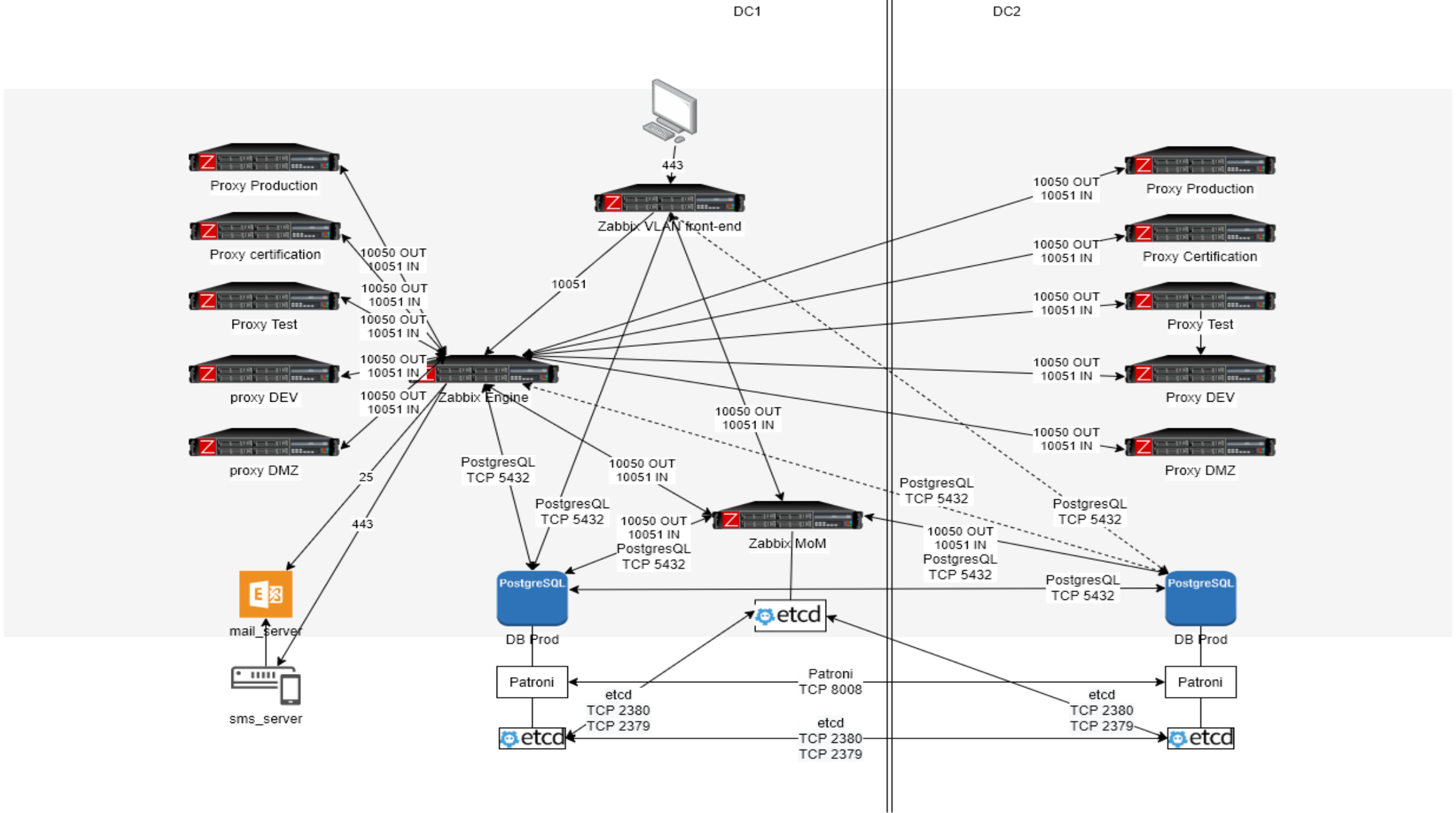
- Better cross features on network/server/software environments
- Great opportunity to extend the integrations with other internal bank software
- Continuous enhancement on every Zabbix releases
- Best integration with automation software (Ansible)
- Previous experiences and skills



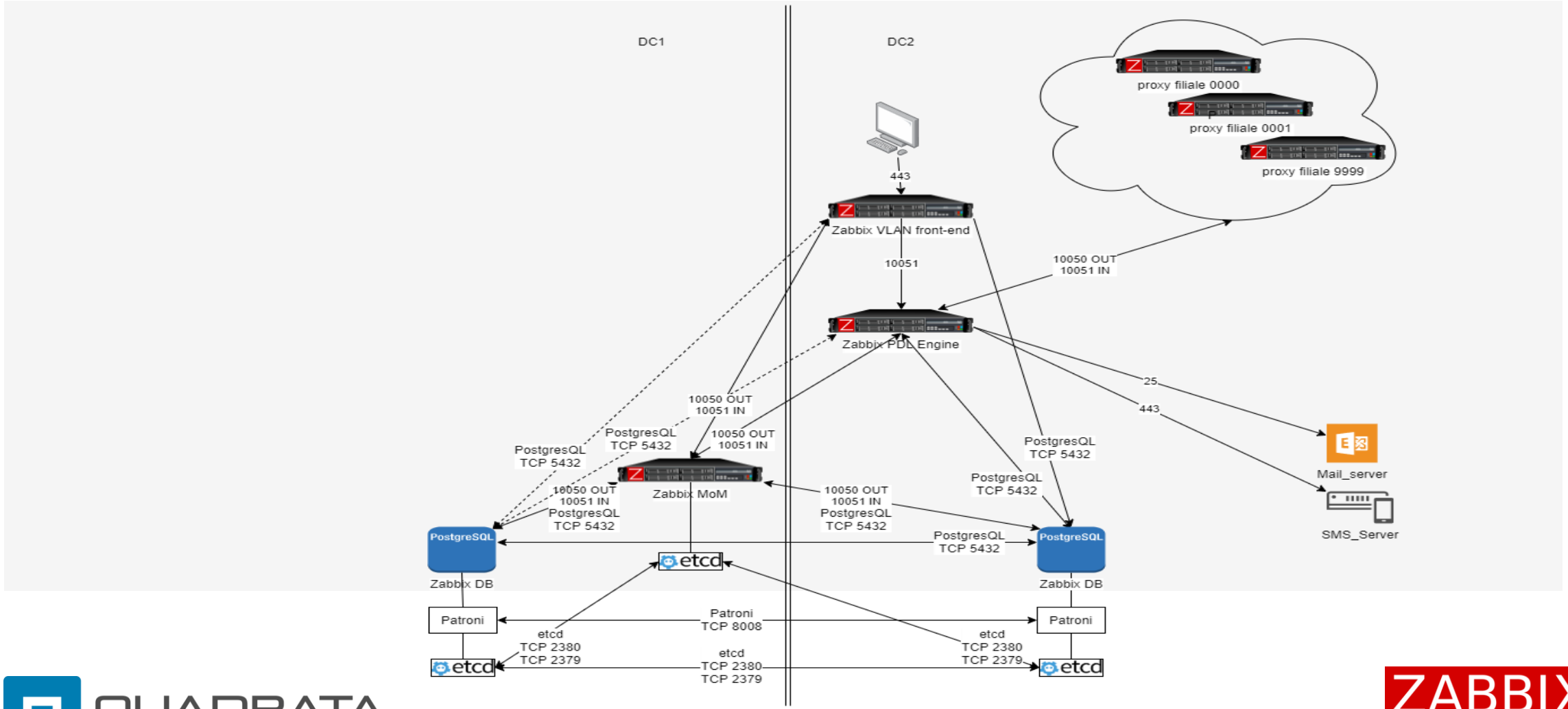
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Zabbix central infrastructure: DCs



Zabbix Central Infrastructure: Branches



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New Infrastructure

Hardware:

- **Two nodes bare metal Cluster for PostreSQL DB**
- **Two bare Zabbix Engines**
  - **each with: 2 Intel® Xeon® Gold 5120 2.2G, 14C/28T processors, 4 NVMe disks and 256GB RAM**
- **VM for Zabbix MoM**
- **Bare server for Databases Backup**

Software:

- **OS RHEL 7.x**
- **PostgreSQL 12.x with TimeScaleDB 1.6 extension**
- **Patroni Cluster v.1.6.5 for managing Postgres/TimescaleDB**
- **Zabbix Server v. 5.0.x**
- **Proxy for all metrics collections (5 for each DC, 4 for Branches)**

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Zabbix Templates Customization

- Started from official Zabbix templates
- Deleted not interesting metrics
- Added throttling and keepalive tuning for massive monitoring
- Relaxed some triggers and related recovery
- New Custom Template Module for Linux Multipath monitoring
- New Custom Template for NFS/CIFS monitoring (need ZBXNEXT-6257)
- New Custom Webhook for event ingestion on third-party software (CMS/Ticketing)

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Zabbix Configuration & Provisioning

- Extensive Ansible tasks and playbooks usage for:
  - Agent distribution and installation
  - Template association using CMDB
  - Hostgroup creation/association using CMDB
- Some custom scripts for:
  - User alignment with AD

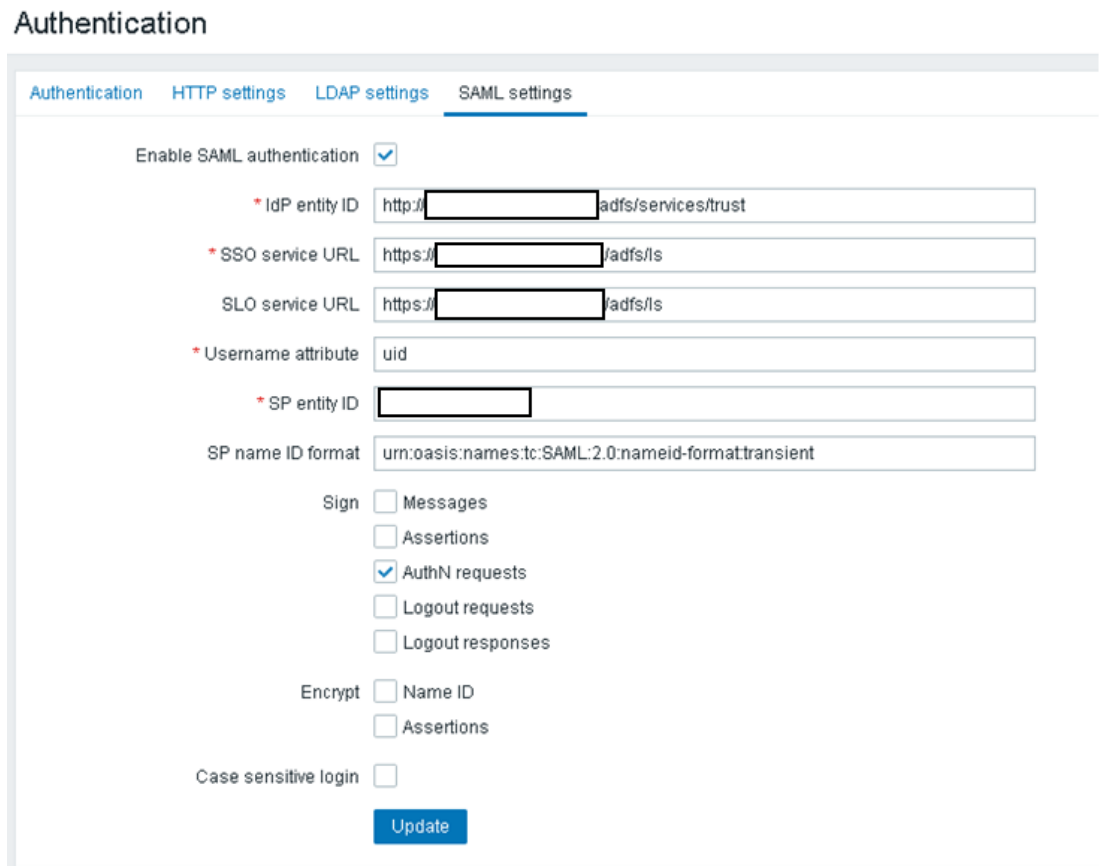


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Zabbix SAML2.0 with MS Active Directory

Single Sign On with Active Directory Federation Services



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Found and Solved Issues

- Dedicated proxy for each branch initial requirement revealed too expensive for provisioning, maintenance and support: traffic consolidated in only four proxies
- DC DB growing over 3.5TB: modified many on-off metrics keep-alive from 15 minutes to 60 minutes while lowering sampling interval to 5 minutes
- Solaris O/S 10 - No official Zabbix Agent
- Check for not supported value preprocessing step test (ZBXNEXT-6257) for NFS stale status
- Allow max length of user macros to 2048 (server side) (ZBXNEXT-2603)
- JavaScript preprocessing user macros support (ZBXNEXT-5185)

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Some figures:

- Project started in April 2020, massive deploy July / August
- More than 5000 monitored servers in two DCs
- More than 6000 monitored devices in branches
- Current DB: 3.5 TB for DCs, 0.5TB for branches
- Currently more than 3800 NPVS (DCs)
- Forecasted LibreNMS and CheckMK decommission: end 2020



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Next Steps

- Complete DCs monitoring for other devices
- Complete branches monitoring for switches and WiFi AP
- Implement Custom Periodic reporting
- Integrate with C-level dashboard
- Tune alerting and escalations



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Thank you!

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