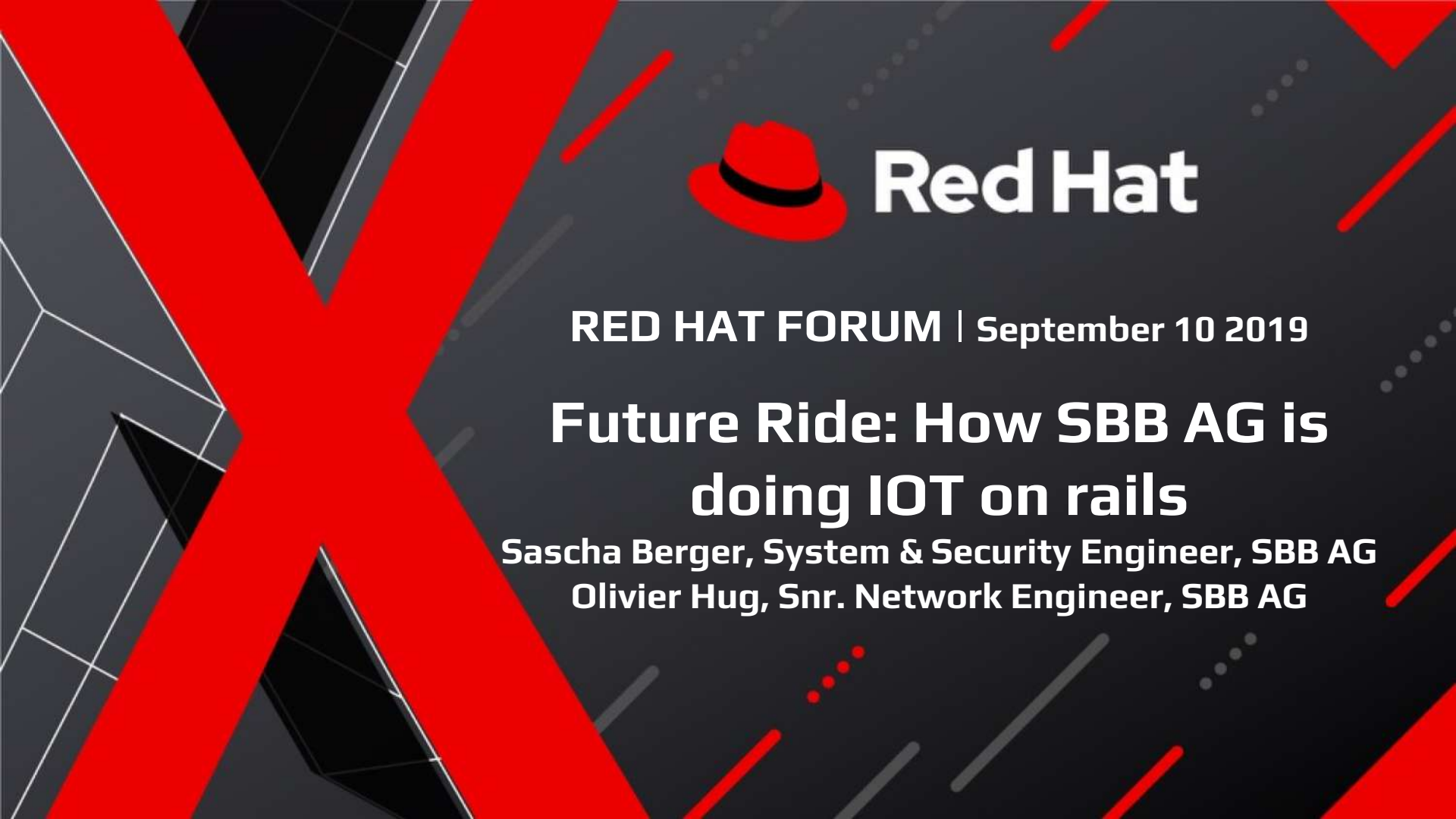

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Future Ride: How SBB AG is doing IOT on rails

Sascha Berger, System & Security Engineer, SBB AG
Olivier Hug, Snr. Network Engineer, SBB AG

Future Ride

Mobile asset provisioning & management
How SBB is doing IoT on rails

Sascha Berger, Olivier Hugi

10.09.2019

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AGENDA

- WHAT IS IoT FOR ROLLING STOCK?
- BIRDS EYE VIEW ON VEHICLE SYSTEMS
- IoT CHALLENGES-OPPORTUNITIES-THREATS
- AUTOMATION EXAMPLES WITH RED HAT TOOLS
- WHAT'S NEXT

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ABOUT US

Sascha Berger
System- & Security Engineer
SBB AG

Olivier Hugi
Senior Network Engineer
SBB AG

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WHAT IS IoT FOR ROLLING STOCK?

“The Internet of Things has become the title of everything from an article in Scientific American to the name of a European Union conference, it is still often misunderstood.”

Kevin Ashton – RFID Journal

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SUBSYSTEM SUMMARY

ICT Systems on Rolling Stock

Mobile Router (LTE/GPS)

Ethernet Backbone

Wi-Fi

Inter Vehicle Network

TFT Displays

LED Displays

Audio Systems

Board computer

Emergency Phones

User Terminals

CCTV

Passenger Counter

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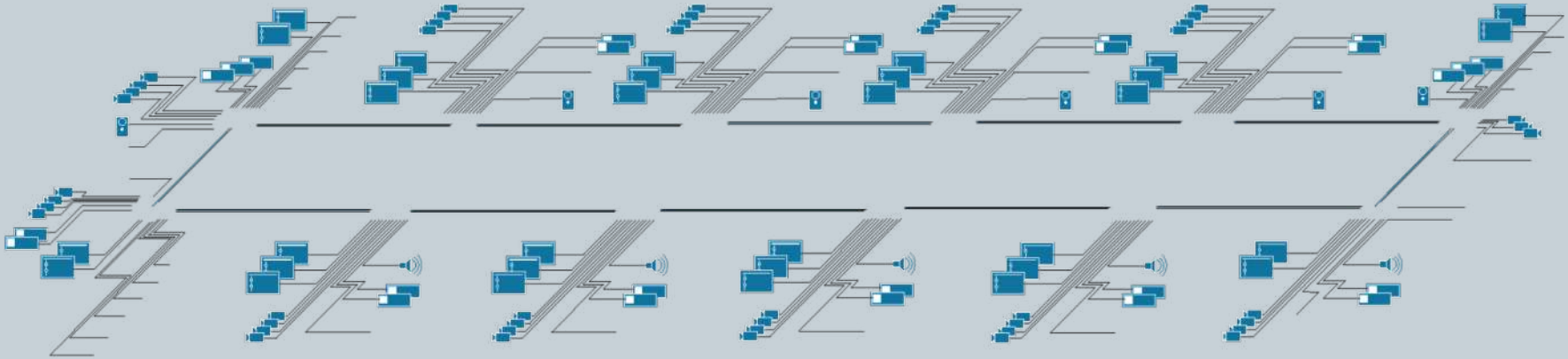

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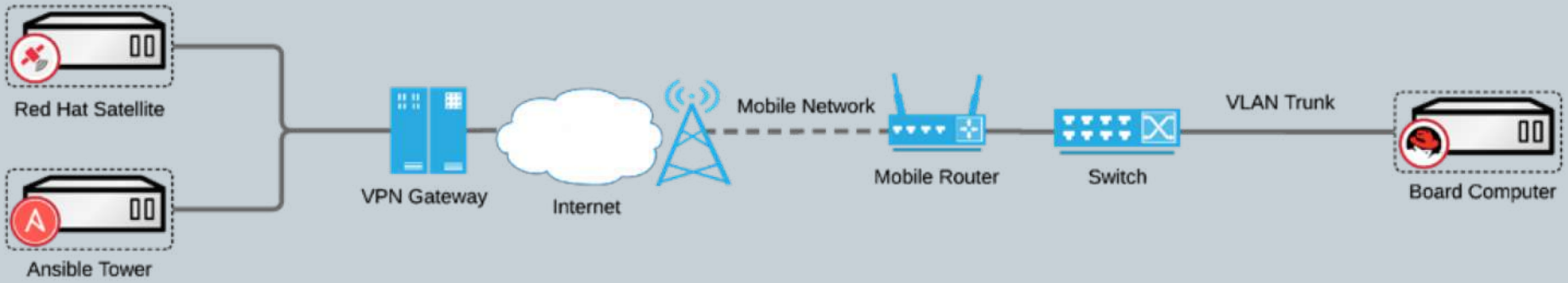
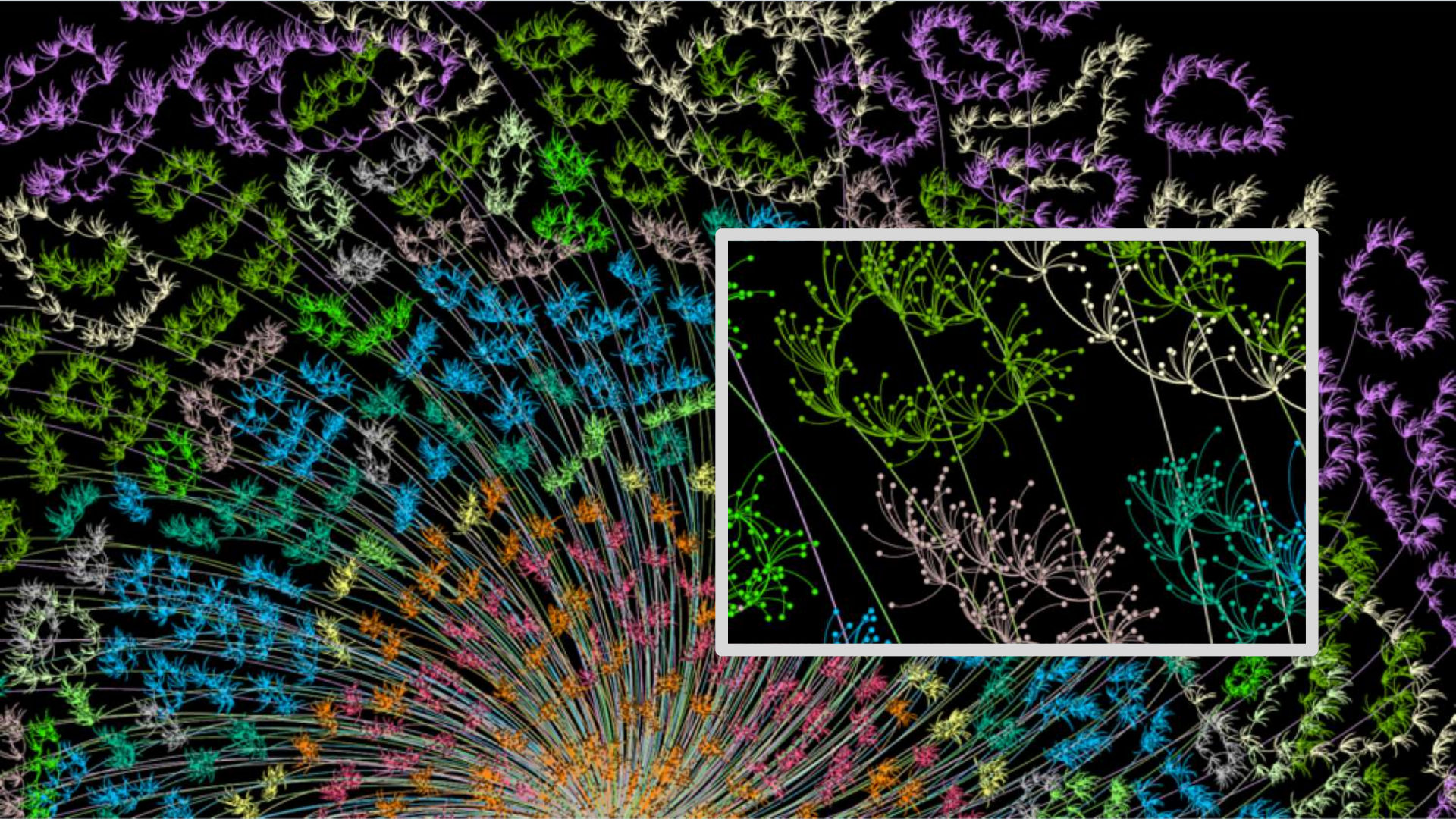

Red Hat Satellite
Ansible Tower
VPN Gateway
Internet
Mobile Network
Mobile Router
Switch
VLAN Trunk
Board Computer



Challenges-Opportunities-Threats

System Design

- Systems have become really large and complex.
- Breakup of systems has to be avoided – consolidation of legacy assets.
- Use of open source technology and international standards.

Deployment

- Very difficult in rail industry.
- Systems are moving during the whole day. Connectivity and access not to be a given.

Operation

- Operation has to be a key aspect, or we will loose control and life cycle costs will get out of hand.
- Teams are always understaffed with good technicians.

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Challenges-Opportunities-Threats

Data

- Enable applications to benefit from already available data.
- Sharing data and making them available to other subsystems.

Applications

- Fast application deployment for offering great customer solutions.

Operation

- Saving large amounts of manual intervention.
- Detecting system failures before they have an impact.

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Challenges-Opportunities-Threats

IT Security

- Fulfill IT security baselines and standards for critical infrastructure.
- Transparent view on the security state of our assets.

Patch Management

- Using systems that can provide errata feeds.
- Ability to deploy slow-ring and fast-ring patches.

Cyber Threats

- Feed security related data to CSIRT.
- Protect, defend and maintain.

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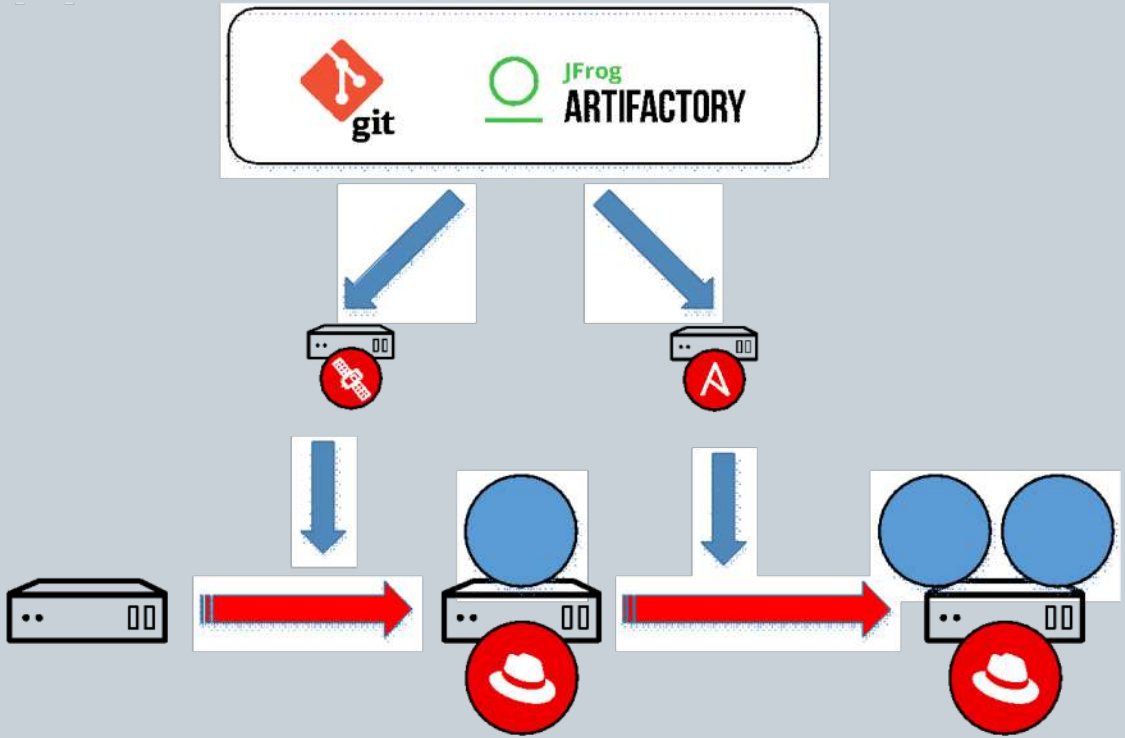
DEPLOYMENT AUTOMATION



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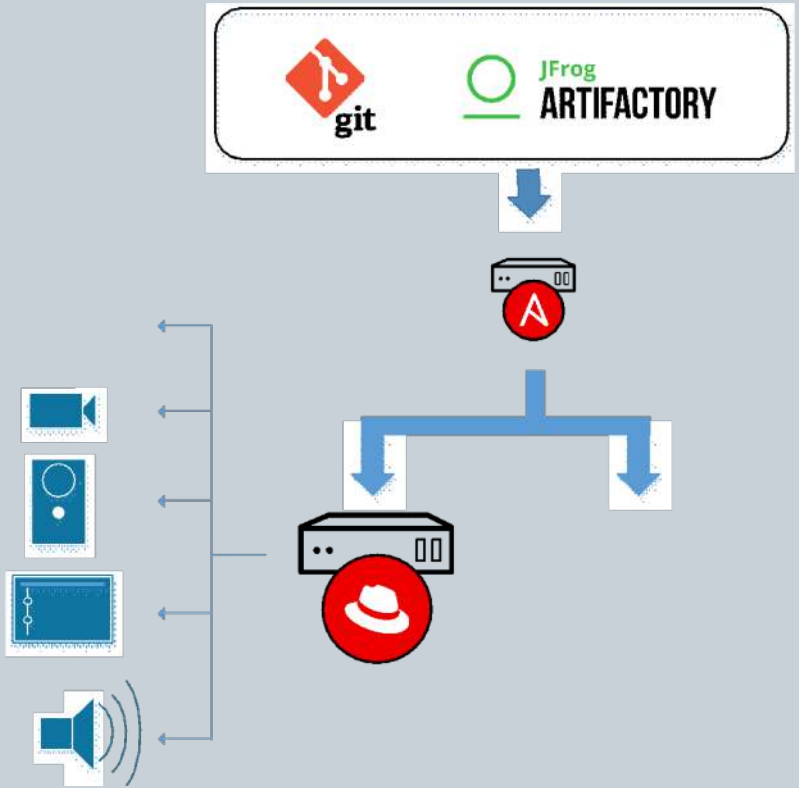
OPERATION AUTOMATION



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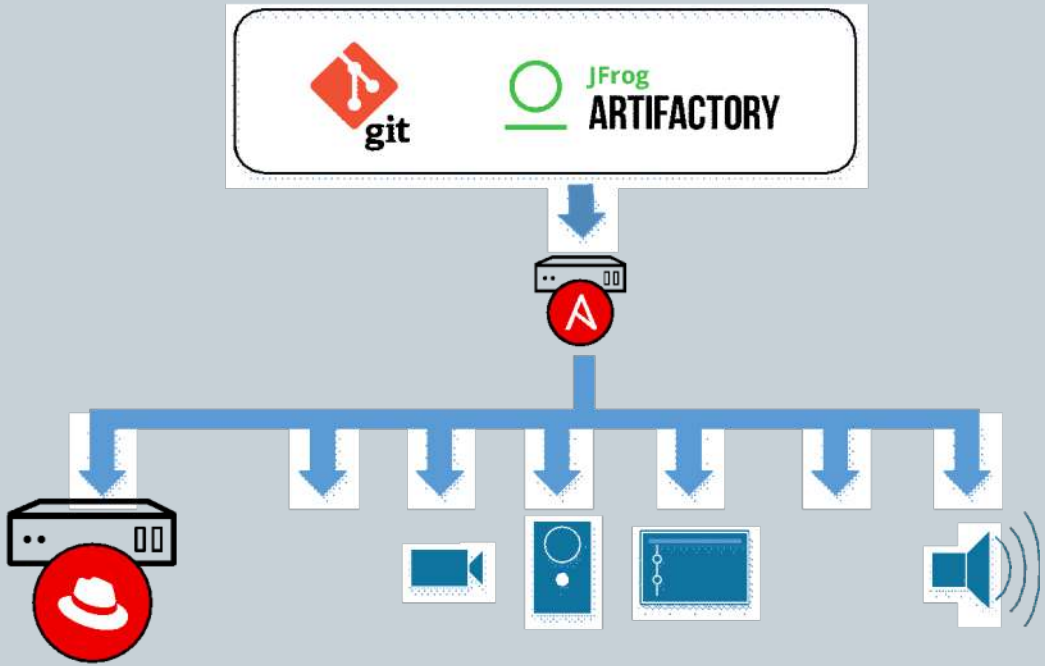
OPERATION AUTOMATION



WHAT'S NEXT?

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WHAT'S NEXT

New

- Integration of many new legacy systems in Ansible (IPv6 deployment in 2020)
- Make use of Red Hat Identity Management
- IT security policy enforcement (oSCAP)

Continue and strengthen

- Collaboration with upstream community
- Long time support und and tested, industry ready solution from Red Hat.
- Embracing Open Source gives SBB confidence to not fully depend on any supplier.

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Thank you.

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VOM OSB auf Red Hat Fuse in 6 Monaten

Stephan Staeheli, Plattformarchitekt, Baloise AG
Frank Baier, Integrationsarchitekt, Baloise AG