Connection Integration System for ICT Infrastructure Management

Background

Many of recent network services are provided by NFV-based micorservices to enable great dynamics in development and deployment. There are several kinds of orchestrating tools that provides flexibility of deployments. However, the management interface (e.g., SSH, telnet and Web UI) against ICT infrastructure tend to be complicated based on the number of components. Furthermore, most of management interface does not provide standard logging feature which is extremely important on ICT managements.

In this work, we demonstrate how these issue can be mitigated with the connection integration system called SMART-GW.
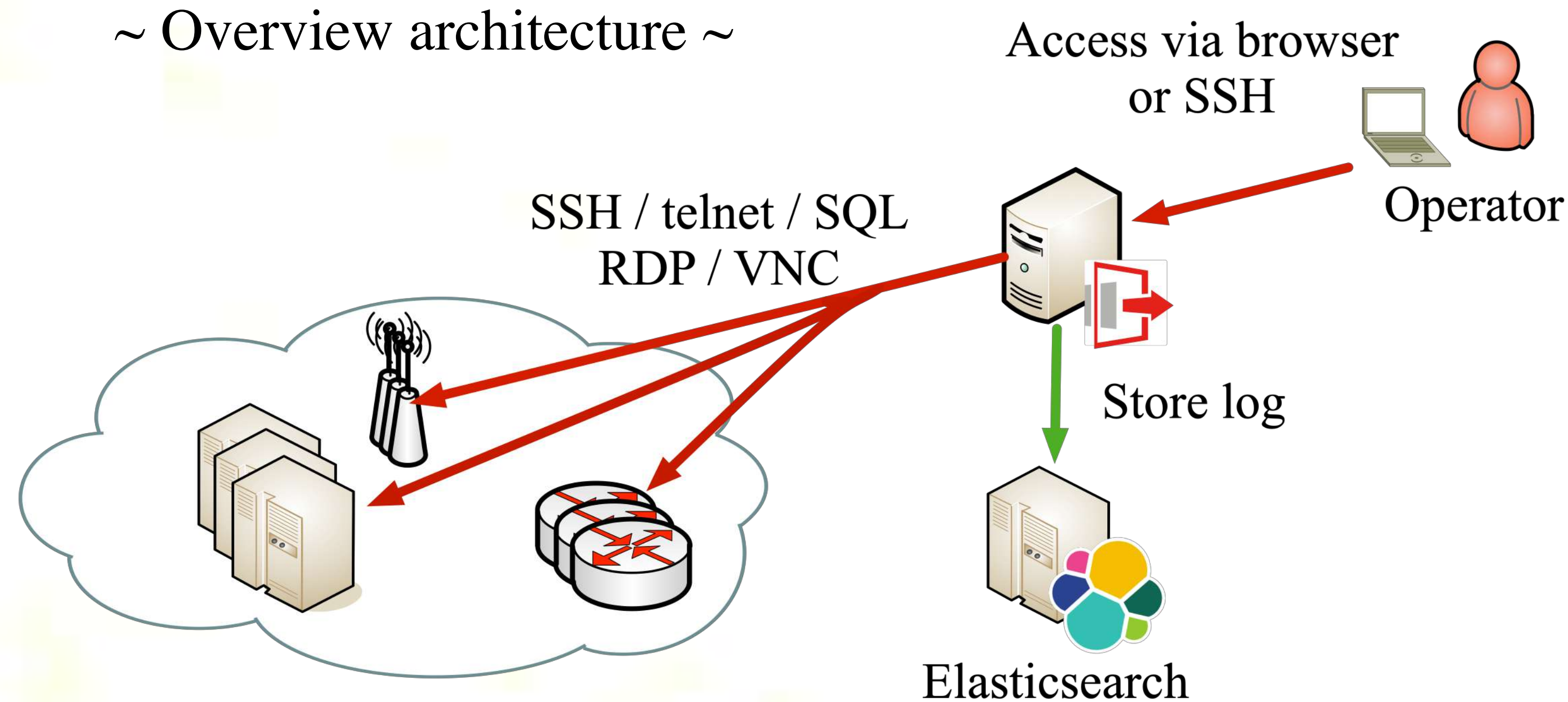
Overview

SMART-GW has following features.
· Many kinds of protocols are available.
  · SSH / telnet / RDP / VNC / HTTP(s)
· Records session behavior accurate.
  · Commands, SQL, web access, file transfer, typescript, video
· Clientless connection.
· OS independent access and command restrictions in target node.
· Access restriction, command restriction and logging are centralized and fine-grained configurable.
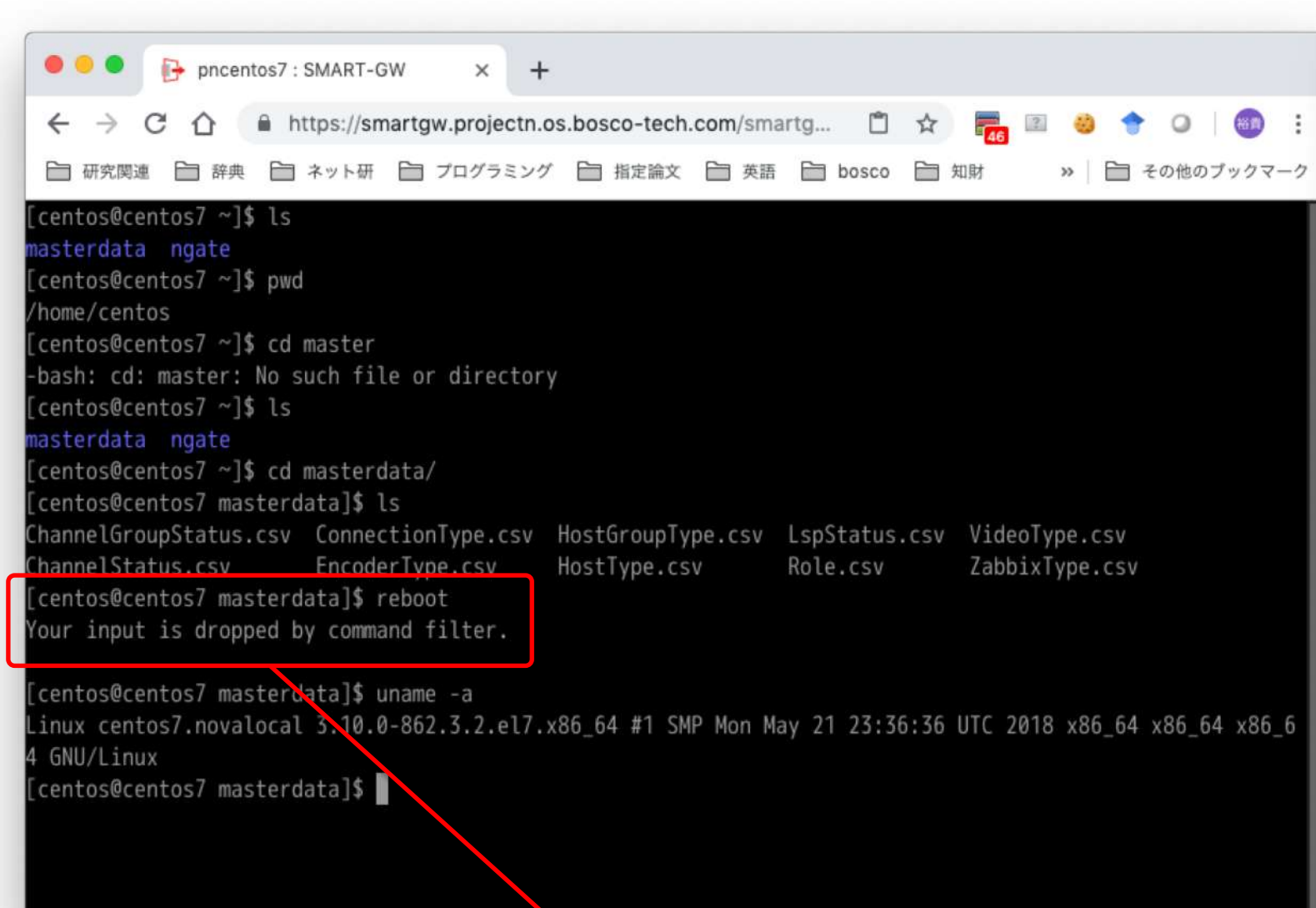· All the feature is available as REST API.
· And many more fantastic features!

Managing ICT infrastructure

~ Overview architecture ~

Access via browser or SSH

SSH / telnet / SQL RDP / VNC

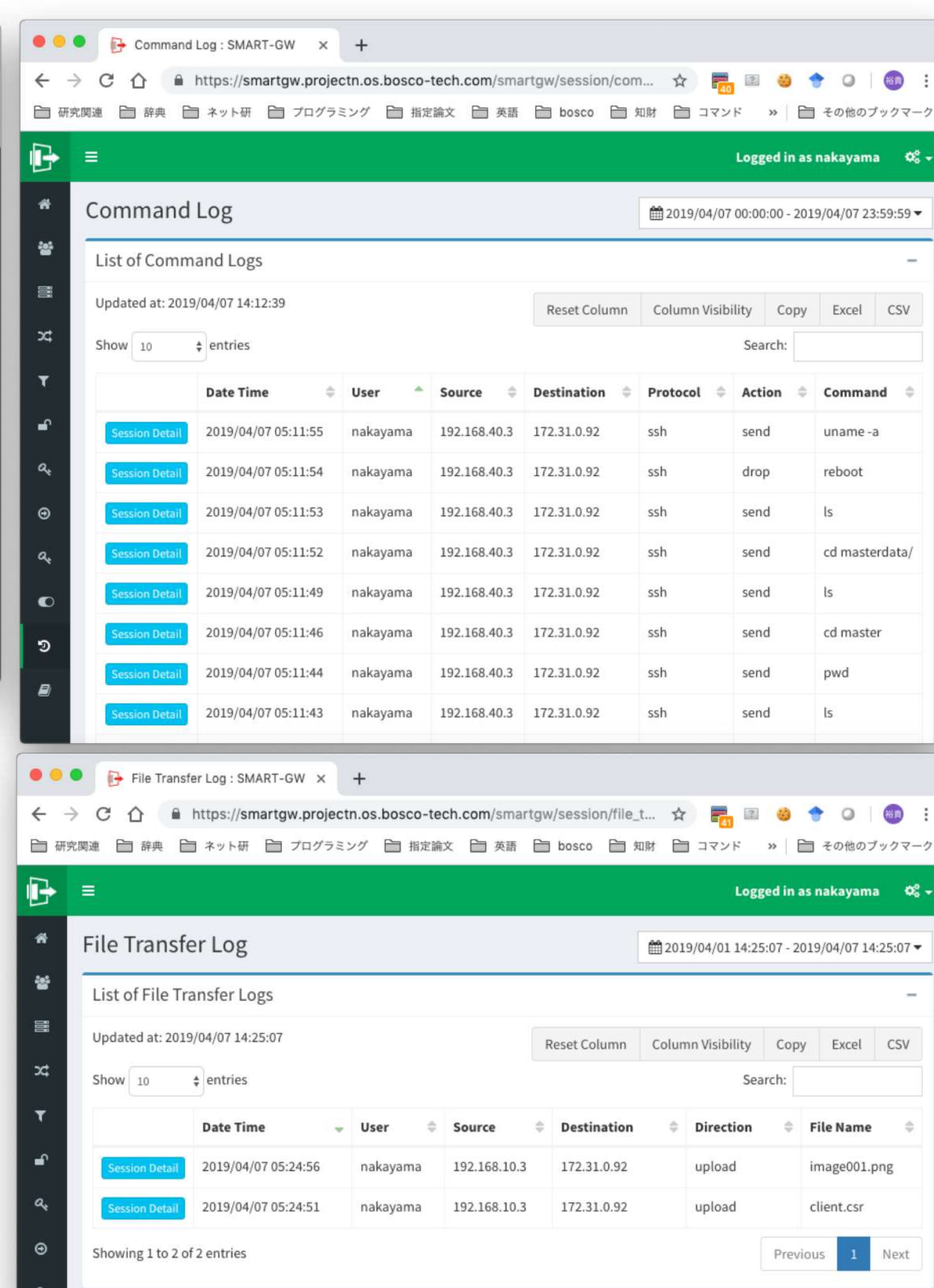Operator

Store log

Elasticsearch

All the connection is available via web browser

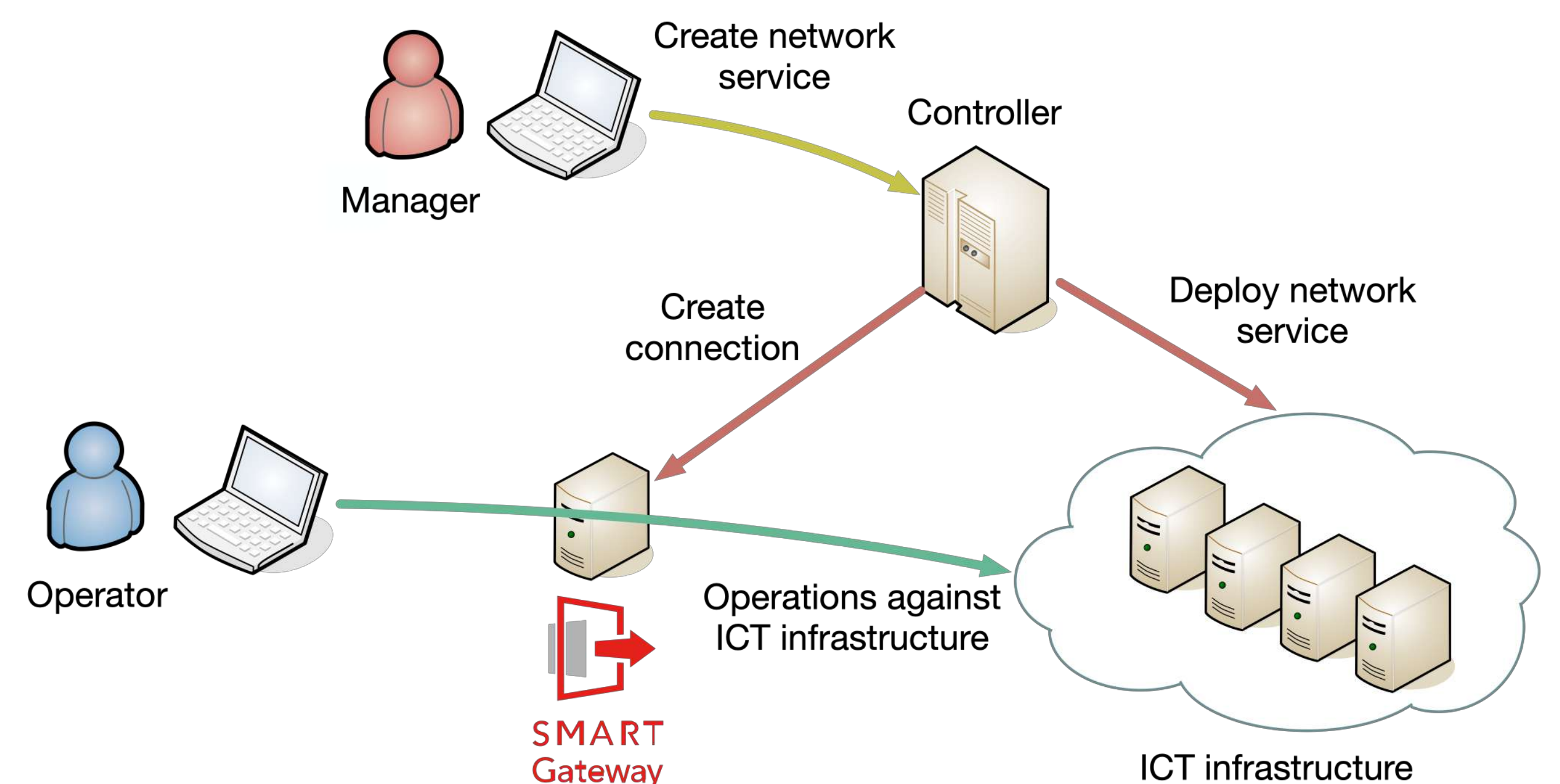All the behavior including command and file transfer is logged.

"reboot" command is restricted

Dynamic connection management

~ Overview architecture ~

Manager — Create network service — Controller — Deploy network service

Create connection

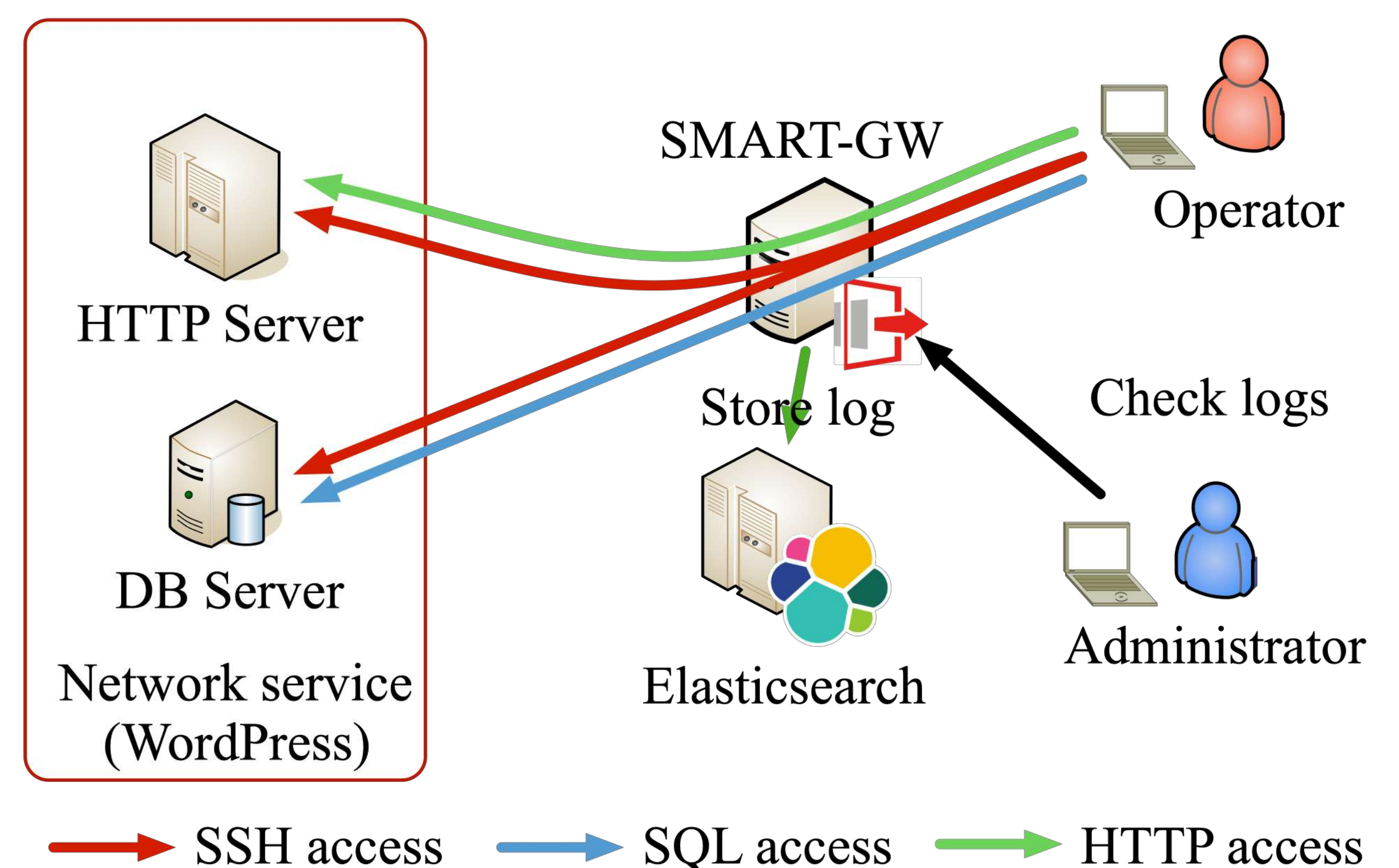Operator — Operations against ICT infrastructure — ICT infrastructure

SMART Gateway

Example of REST API for connection

```
curl -XPOST http://localhost/categories/1/connections
-H 'Content-Type: application/json'
-d '{"name":"name","host":"192.168.0.2","protocol":"ssh"}'
```

Sequence of dynamic connection management

1. Create new network service via controller.
2. Controller creates network service at ICT infrastructure.
3. Create connection in SMART-GW via REST API.
4. Operator is available to connect and manage service.

Demonstration

HTTP Server

DB Server

Network service (WordPress)

SMART-GW

Store log

Elasticsearch

Operator

Check logs

Administrator

→ SSH access   → SQL access   → HTTP access

Demonstration

1. SSH session against ICT infrastructure via browser.
2. HTTP session against ICT infrastructure via browser.
3. SQL session against ICT infrastructure via browser.
4. Check and investigate logged session data.

Please try your self if you want !
Any questions are welcome !

The companies using SMART-GW

SMART-GW is already running in following companies.
• CAB: Civil Aviation Bureau (Japan)
• NTT Communications
• NTT
• KDDI
• KDDI Laboratories
• Mega banks in Japan
• Many service providers and SIers

MLIT Ministry of Land, Infrastructure, Transport and Tourism

NTT Communications

NTT

KDDI R&D LABS   KDDI Designing The Future

b-en-g すべては変革のために   東洋ビジネスエンジニアリング株式会社

J's Communication   JMT JM Technology Inc. ジェイエムテクノロジー株式会社

JDS Japan Digital Serve   AZIN 株式会社エイジア

MSC GROUP   MSC Group

SMART Gateway

BOSCO Technologies