Enabling OSS Modernization and Service Automation for EWE TEL GmbH

A Success Story by FusionLayer Inc.

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By FusionLayer Inc, September 2024.

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1. Introduction

EWE TEL is one of Germany's largest regional telecommunications companies based in Oldenburg in the Lower Saxony region. Committed to excellent customer service and the adoption of the latest telecommunications technologies, they provide the following services to the EWE customers:

- **Broadband Internet Services,** including DSL, VDSL, and fiber-optic connections for residential and business customers.
- **Telephony Services** include both landline and mobile phone services.
- **Television Services** are bundled with internet and telephony packages.

  Business Solutions that cover a range of telecommunication

Overall, EWE TEL plays a significant role in the telecommunications sector in Northern Germany, combining traditional telecom services with modern technological advances.

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2. Business Drivers

EWE AG, a leading enterprise in Northwest Germany, is driving the energy revolution by strategically integrating electricity, heat, telecommunications, and mobility. The company's strategy focuses on delivering a secure and scalable digital infrastructure for business customers while providing households with sustainable, integrated energy and telecom solutions.

To enable the execution of this strategy, EWE identified the need for a new, advanced technological foundation leveraging state-of-the-art Operation Support System (OSS) and Business Support System (BSS) technologies. As part of this initiative, EWE launched an OSS modernization program. Software-Defined IP Address Management (SD-IPAM) was prioritized as a critical part of the program to enhance its efficiency, scalability, and security.

3. Business Challenges

Like many other telecommunication companies, EWE TEL previously managed its network and IP address assignments using multiple tools and spreadsheets. However, as part of the OSS modernization program involving service automation, it became clear that traditional approaches would no longer be feasible.

With over 13,000 subnets, hundreds of VPNs, and tens of millions of IP addresses under management, the traditional IP address management methods introduced several operational, security, and business continuity challenges. These include:

Operational Inefficiencies:

- **Time-Consuming Processes**: manually updating, tracking, and managing subnets is time-consuming. Routine tasks like IP address allocation, subnet adjustments, and troubleshooting take longer than necessary.
- **Human Errors**: Manual data entries and management increase the chance of mistakes. These errors can lead to misconfigurations, duplicate IP allocations, and network conflicts, which are difficult to detect and rectify.

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Data Inconsistencies:

- **Fragmented Information**: managing subnets across multiple Excel files or disparate systems can lead to data inconsistencies, with different versions of the same data in several places. This makes it challenging to ensure all stakeholders access up-to-date and accurate information.
- **Lack of Centralized View**: a unified platform makes getting a holistic view of the network easier, leading to better network visualization and oversight.

Scalability Issues:

- **Limited Capacity to Scale**: Manual management becomes increasingly impractical as the network grows. The complexity of managing additional subnets and IP addresses compounds makes it difficult to scale operations efficiently.
- **Delayed Network Expansion**: the slow, manual process can delay network expansion, impacting the ability to respond quickly to new business needs or customer demands.

Troubleshooting Challenges:

- **Slow Issue Resolution**: identifying and resolving network issues is challenging when information is scattered across multiple files. Troubleshooting processes can be delayed due to the time required to locate and verify relevant data.
- **Increased Downtime**: the risk of prolonged network outages increases as it becomes harder to pinpoint the root cause of issues quickly.

Compliance and Security Risks:

- **Non-Compliance**: Manual management makes it difficult to ensure that all subnets comply with industry standards and regulations, potentially leading to compliance breaches.
- **Security Vulnerabilities**: a centralized system makes monitoring and securing all subnets easier. Gaps in security management could lead to vulnerabilities being exploited by malicious actors.

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Resource Drain:

- **High Operating Expense**: manually managing subnets requires a larger IT team, leading to higher labor costs. Skilled staff may also be diverted from more strategic tasks to handle routine subnet management.
- **Training Requirements**: constantly training new personnel to manage subnets manually can be resource-intensive, especially if the processes need to be standardized or documented properly.

Inefficient IP Address Utilization:

- **Overlaps and Conflicts**: Without automated tools, there's a higher risk of IP address overlaps and conflicts, which can lead to network disruptions.
- **Underutilization of Resources**: manually managed subnets might not be optimized, leading to underutilization of IP address space, which can be costly in the long run.

The manual management of over 13,000 subnets introduces significant operational, security, and scalability challenges, leading to inefficiencies, increased costs, and higher organizational risks.

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4. The FusionLayer Solution

To solve the business and operational challenges outlined in Chapter 3 of this document, FusionLayer transitioned EWE TEL to the FusionLayer Infinity platform: a centralized, software-defined IP Address Management (SD-IPAM) solution. The resulting centralized Network Source of Truth (NSOT) was used to harmonize all network data, including:

- Network assignments, subnets, and IP allocations
- Proper documentation of fixed and dynamic pools, BNG pools, and MPLS details

The new FusionLayer solution also provides several new functionalities that enhance the security and the continuity of the EWE TEL OSS architecture:

Role-Based Access Control for Added Security:

- Granular RBAC ensured that various network teams accessed only what they needed, optimizing network management.
- A single pane-of-glass view and customizable dashboards enabled superior network traceability.
- Critical changelog features with an undo function greatly enhanced security and audit trails.

Improved Visibility and Seamless Integration to Streamline Operations

- Infinity's modular tagging system enhanced searchability and formed the backbone of network automation through API endpoints.
- The network delegation feature offered a robust system for managing customer-handled networks.
- Structured phased migrations facilitated a smooth transition to the Infinity system, minimizing risks and operational disruption.

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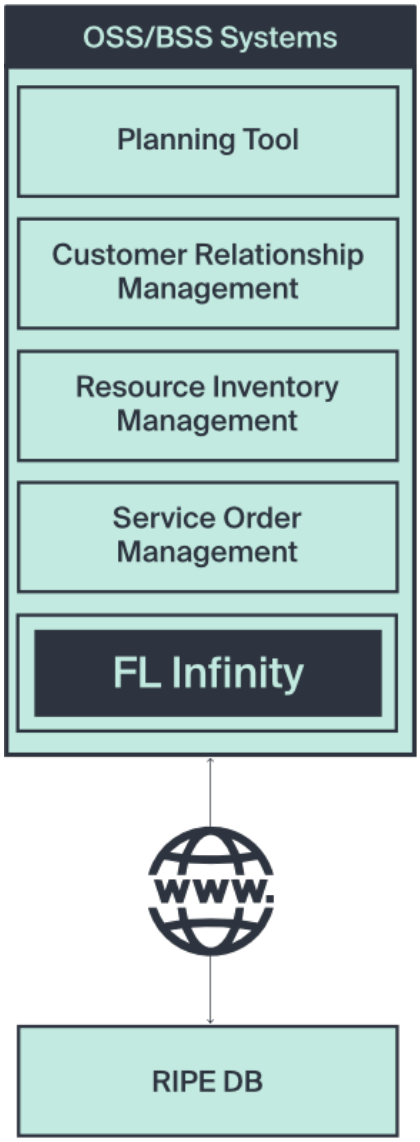
Enabling OSS Service Automation:



- FusionLayer Infinity integrates with EWE TEL's existing and new OSS/BSS framework, facilitating various service automation initiatives.
- Automated RIPE DB integration enables true zero-touch data exchange with the Regional Internet Register (RR), with which EWE TEL works within Europe.
- The open REST API caters to EWE TEL's modernization needs moving forward.

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5. Conclusion

After deploying FusionLayer Infinity at EWE TEL, traditional IPAM processes were centralized onto a unified platform to enhance operational efficiency and security. The resulting consolidation has streamlined network management workflows and enabled automation processes that rely on real-time access to network data. As a result, EWE TEL has modernized its network management and service automation, further solidifying its position as a leader in cloud-native telecom innovation.

In the words of Mitja Thomas, Project Manager of OSS IT Modernization project at EWE TEL:

"Deploying FusionLayer has significantly improved our network management capabilities. The centralized SD-IPAM system streamlines our network data handling, providing comprehensive visibility and consistent documentation. The REST API we now have for process automation allows us to implement new use cases moving forward.

Overall, the phased migration to the Infinity system has been smooth so far, with minimal disruption to our operations. The system's enhanced security, audit trails, and superior network traceability are great tools for optimizing our network management. We are happy with the modernization and increased efficiency that FusionLayer has enabled at EWE TEL."

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About FusionLayer

The decentralized business infrastructure of tomorrow will be based on fast 5G connectivity and multi-access edge clouds that process data using Artificial Intelligence.

FusionLayer provides patented Network Source of Truth and IP addressing solutions that lay out the automation bedrock for the network functions, intelligent devices, and business applications that connect through the next-generation edge clouds.

The future of networks is here.

At scale. With ease.

About EWE TEL AG

EWE TEL is a leading provider of sustainable, integrated products for features and services in and around the home. It offers several brands across Germany and is a prominent energy, energy services, and telecommunications supplier, with EWE TEL focusing on such telco services.

EWE TEL's superior services motivate customers to use EWE TEL services and remain loyal customers of EWE TEL, making it the most significant regional and the fifth largest Telco supplier in Germany.

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