Key Facts

213 Systems for 112 CSPs

Manages 112 Multi-vendor Networks in 68 Countries

25 Vendors Integration Experiences

400 Equipment Accumulated Probes

4 Solution And Product R&D Centers
Shenzhen, Shanghai and Nanjing in China, Melbourne in Australia

5 Delivery Centers
China, India, Romania, Australia and Singapore

2 Competence Centers
Ireland and Spain

2 Global OSS Cloud Centers
India and Romania

3500 Global OSS Experts
to provide high quality services to customers
Performance Management Solution Unleashes Network Potential in A Leading Operator Group

- Continuously optimize for best end-user experience
- Maximize return on network investment
- Simplify network management with low OPEX
- Leverage from accumulated practice
OSS Transformation Improves Market Share & Customer Experience

Background

- A Southeast Asian operator has a multi-vendor 2G/3G network with over 58,000 network elements, with equipment from 5 vendors. The local environment has a diverse geography and frequent severe weather, massive alarms and trouble tickets caused by power outage in lightning storm, which posed a further challenge for the operator’s network operations.
- The operator operated the network from a central NOC, where all network monitoring and troubleshooting was performed, with regional offices that were used for co-ordinating the fieldwork force for corrective and preventive maintenance. Its operating support system (OSS) lacked automation and was inefficient at managing incidents, making it difficult to achieve KPI/SLA targets and expensive to operate.
- The operator needed to address these issues in order to improve its service quality at reduced operating costs. This would enable it to improve customer experience, reduce churn and increase revenue, while maintaining low operating expenditure (opex). The operator could then focus on new service innovations to compete more effectively in the market.

<table>
<thead>
<tr>
<th>Network element type</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobile switching centre (MSS)</td>
<td>99</td>
</tr>
<tr>
<td>Base station controller (BSC) / Radio network controller (RNC)</td>
<td>297</td>
</tr>
<tr>
<td>Media gateway (MGW)</td>
<td>171</td>
</tr>
<tr>
<td>Base transceiver station (BTS)</td>
<td>29,000+</td>
</tr>
<tr>
<td>Transmission (BB/Hubs/MW)</td>
<td>29,000+</td>
</tr>
</tbody>
</table>

Driving transformation

Huawei was chosen to drive an OSS transformation program that involved replacing the legacy OSS environment of the operator with an E2E automatic service assurance solution.
A Middle East operator faced the challenge of managing a complex network consisting of 2G, 3.5G, and LTE network technology as their subscriber base continued to grow rapidly. Adding to this complexity was the multi-vendor multi-technology network operations that required efficiency improvements in network quality, operations, and processes while guaranteeing customer experience and reducing cost.

**A Visible Solution**

Fault Management, Service Desk Management, Workforce Management and Performance Management solutions, from Huawei, were quickly and efficiently implemented in the operators network. Huawei also provided pre-integration solution and automated processes to improve efficiency. These solutions addressed the following key areas for the operator:

- Integrated network surveillance for multi-vendor and multi-domain
- Performance dashboard for a heterogeneous network
- Performance threshold alarm and performance KPI report
- Process standardization (Trouble Ticket, Change Request, Performance Management, Work Order, etc.), Service Level Agreement(SLA) control and measurements based on customer request and automatic SLA reporting

**Achievements**

By combining Huawei’s solutions with our best practices we were able to achieve the following for the operator:

- SLA compliance rate improved to 93%
- SLA reporting compliance and increased SLA reporting efficiency by 90%
- Reduced major alarms (reported missing) for ticket creation
- Automated generation of network performance report thereby increasing efficiency by 80% compared to manual reporting

**Benefits**

The operator achieved better operational metrics, resulting in reduced operational costs and improved customer experience.

- Implementation of the multi-vendor MVOSS solution delivered the following primary benefits for the operator:
  - the reduction in unnecessary tickets enabled the relocation of employees to other tasks, leading to a 49% efficiency increase of the RAN support team
  - increased first call resolution (FCR) at NOC front office; 30% of problems are now resolved at NOC front office without escalations to back office
  - the generation of automatic performance reports enabled staff to allocate more time to core tasks
  - improved allocation of field engineers and decreased site visits, yielding a 49.5% improvement in fieldwork efficiency
- The MVOSS solution also led to a reduction in complaint rates by as much as 3% between 2012 and 2013. It also contributed to improve NPS from -10 in 2012 to +20 in 2013.

The MVOSS implementation provided the foundation for building the operator’s service and customer-oriented operations, especially as they move to new technologies.
Highly Efficient FME’s

Using Workforce Management Solution

An Eastern Europe -Northern Asian operator has to cover 17,075,400 square kilometers with hundreds of field engineers to assure 16,000 sites across the country. They requested a real time visual representation and analysis of their field engineers & operations.

A transformation for field maintenance

The visualization of field operations is provided by Huawei’s Workforce Management solution. Huawei categorized work activities as corrective maintenance (CM), preventive maintenance (PM), and change request (CR), and established a baseline for each activity and region to benchmark improvements from implementation of the solution.

Remarkable achievement

The operator can evaluate FME performance based on their output efficiencies and provide incentives to high performing FME’s with bonus, competition between regions, evaluation of regional manager’s performance, etc. Following are the results achieved from implementing the Workforce Management solution:

- No. of WOs/FME/day: increased from 1.0 to 2.1;
- Average available time(%): increased from 31% to 63.8%);
- Average operation time: reduced from 112 to 85 minutes;
- No. of FMEs: optimized from 327 (in Jan.) to 280 (in June)

Driving Superior Service Through Automation

Supporting explosive growth in data services, an East Asian operator has automated Operations and Maintenance (O&M) activities to provide superior service to its end users.

The Right Partner

Huawei with its global experience of delivering leading edge automated O&M systems was seen as the perfect partner. The solution was to automate field maintenance with the introduction of an end-to-end Work Force Management system. The solution is called T.I.M.E. and supports the operator’s drive for efficiencies in scheduling, resource allocation, reporting and forecasting of field engineers. The fully automated system helps the operator achieve fast resolution of faults through:

- Timely Scheduling – Based on Huawei’s patented algorithms, the system will dynamically and intelligently allocate each trouble ticket to the most cost efficient resource based on variables such as travel time, location, priority, skills, and experience.
- Intelligent PDA – The engineer receives all necessary information concerning the trouble ticket to his PDA. With the necessary information to hand he is enabled to take the required action in both corrective and preventive maintenance situations. This enables faster fault resolution which supports the achievement of agreed SLAs/KPIs.
- Measurable Reporting – Analysis of reports by customer’s team allows for better operation and continuous improvement
- Effective Forecasting – Forecasting in terms of engineers, tools, parts etc. drives cost optimization

Highlights

- 20.8% decrease in network faults
- 23% decrease in the number of distant work orders dispatched
- Steady improvement in the network maintenance quality
Customer Voice
I'm impressed by the powerful OSS system, I believe it will help the NOC operation into a new stage.
- GNOC Director

Background
A South Asian mobile network operator which offers voice and data services aims to achieve higher operational efficiency and quality with an OSS solution from Huawei.

Solution
Huawei provides OSS Gsbh in South Asia, which helped in the operational optimization over a short time period.

Benefit
- With the Fast Track Delivery methodology, the process optimization efficiency increased 50%
- After the process transformation, the overall operational efficiency increased by 19%

Fast Operational Transformation

Highlights

<table>
<thead>
<tr>
<th>Fast-track Process Methodology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Separated BA SA SI</td>
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<tr>
<td>Unified teamwork</td>
</tr>
<tr>
<td>Event Function Data</td>
</tr>
<tr>
<td>TOGAF, BPMN</td>
</tr>
<tr>
<td>One Team</td>
</tr>
<tr>
<td>One Language</td>
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<tr>
<td>One Method</td>
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<tr>
<td>One Deliverable</td>
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<tr>
<td>One Platform</td>
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<tr>
<td>Business, Technical, Operation doc, BPM process model</td>
</tr>
<tr>
<td>Office workflow</td>
</tr>
<tr>
<td>BPM for Business/IT</td>
</tr>
</tbody>
</table>

Accomplishments
The new system enables the operator to focus on priority work helping to ensure a superior customer experience. The solution has reduced response and travel times, aided by the integration of the Huawei dispatch solution with the existing trouble ticket application.

- Efficiency improvements of 15%
- Reduction in TroubleTickets by an average of 8.8% per month
- Per site upgrade from 120 to 178
- Resource Utilization improved from 40% to 74%

Customer Voice
We see Huawei as a strong company with a strong localization in our country. This is essential for this kind of business. We think that for the future, it would be strong linkage between Huawei and us as a basis for more businesses.
- CTIO

Seamless Solution
Huawei was able to provide a Work Force Management solution that integrated with existing systems and platforms to provide the following benefits:

- Standardized FSM IT processes and integration with work order process systems to improve work efficiency
- Standardized electronic preventive maintenance tasks
- Ability for the FME to perform preventive maintenance tasks via mobile app checklist thereby creating greater efficiencies to improve network quality

Field Service Efficiency Improvements

A Central European operator wanted to increase the number of daily jobs its field technicians could complete in response to maintenance and/or repair requests. Additionally, they required an efficient way to respond to priorities along with pinpointing the location of the faults through improved utilization of its Trouble Ticketing system.

Accomplishments
The new system enables the operator to focus on priority work helping to ensure a superior customer experience. The solution has reduced response and travel times, aided by the integration of the Huawei dispatch solution with the existing trouble ticket application.

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Fast Operational Transformation
Improves First Call Resolution & Customer Experience in Mature Market

Award-winning Test & Diagnosis Service

**Highlights**

<table>
<thead>
<tr>
<th>Pre-implementation</th>
<th>Post-implementation</th>
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</thead>
<tbody>
<tr>
<td>Customer Care, First call resolution</td>
<td>FCR improved from 50% to 80%</td>
</tr>
<tr>
<td>NOC Trouble ticket handling time</td>
<td>Reduced by 4 minutes per call 40% reduction</td>
</tr>
<tr>
<td>Unnecessary field visits</td>
<td>Reduced by 40%</td>
</tr>
<tr>
<td>Operations Expenses</td>
<td>Reduced by USD2.7 million per year</td>
</tr>
</tbody>
</table>

**Background**

As an East Asian operator’s customer base increased, repeated issues, that took long times to fix, caused extremely high loads at the contact centre and NOC and increased the field visits, resulting in high OPEX and impaired customer satisfaction.

**Solution**

The operator put in a comprehensive Test and Diagnostics system that enabled it to move technical expertise forward and to make use of each customer touchpoint more effectively.

**Benefit**

This enabled the operator to deal with problems more effectively at the earlier touch point, resulting in reduced time and costs and a better customer experience.

Given the saturated market and the aggressive pricing from competition, the operator has done well to increase its market share, which reached 61% as of 2013.

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Huawei OSS Solutions enables Excellence in Service

**Zero touch NOC**

In order to become the preferred service provider in Middle East, the operator had an immediate need to improve its competitive position by enhancing its operations while increasing subscriber acquisitions and performing seamless network expansion.

This called for tighter control on OPEX through standardization, automation, and streamlining of processes, tools, and systems. However, operator had multiple challenges with multi-vendor network, hard to handle massive alarms and trouble tickets, complex network environment, and lack of effective way to reduce OPEX.

**Improved Performance**

The successful implementation of the solution resulted in marked improvements for the following areas:

- TT creation was fully automated
- Alarm compression ratio: 60%
- Fulfilled 100% auto dispatch and 100% auto TT/SMS update for performance alarms
- Fault management efficiency improved by 48%
Customer experience & 3i strategy
A Southeast Asian operator wanted to continuously focus on customer experience and released its 3i (innovation, investment, incubation) strategy, which was about responsible for new forms of service consumption, new markets and new platforms in order to effectively compete against disruptive entrants into the market.

Challenges
- Service provisioning is too complex and long lead time
- Manual service design process
- Lack of E2E Fulfillment System

Benefit
Presales
Enable easy presales enquiry
- Enquiry capacity increased by 23 times (5,760 enquiry per month)
- Enquiry lead time reduced by 7 times

Network Planning
Enable accurate planning
- Better capacity utilization and planning with accurate information

Enable report generation in easy way
- Generate Capacity, Finance, and Asset Report with 1 click from NIT

Service Design & Planning
Increase order handling efficiency
- Order handling efficiency increased by 15 times per month
- Reduce design fallout
- Design fallout reduced by 75%

Order Manager
Service Order

Designer
Task Manager
Product Catalog
Auto Service Design

Reporter
Business Intelligent Reporting

Resource Manager
Customers, Orders, Physical / Logical Network & Service Inventory

Active Service
Activation

Active Audit
Network Audit

Transmission
IP
NGNBN
ATM
ADSL
Voice
Carrier Ethernet

Inventory Management Solution
Support Multi-vendor, Multi-technology, Multi-layer network
Latin America
Issue to Resolve

» Workforce Efficiency increased by 14.3% in 2013 and 29.6% in 2014
» The number of FME and vehicles reduced by 10%
» The number of WOs/FME/Day improved by 30%
» Resource Utilization improved by 72.6%

Central Europe
Efficient Filed Service Management

» Efficiency increased by 17.4%
» FME number reduced by 17%
» Sites per FMEs for maintenance increased by 33.3%
» Resource Utilization improved from 64.2% to 84.3%

Southwest Asia
Issue to Resolve

» Appointment success rate increased from 60% to 85%
» Efficiency increased by 25%

West Asia
Issue to Resolve

» WOs per day per person increased from 3.0 to 3.3
» O&M efficiency increased by 10%
» The number of technicians reduced from 75 to 65
Efficiency Improvements Through Process Automation

Background
A South Asian state-owned telecommunications company, largest provider of fixed telephony and broadband services needed to automate their processes to improve efficiency and engaged Huawei to support them in this process.

Solution
With integrated solution of Huawei Fault Management System, Service Desk Management System, and Workforce Management System, most of manual processes were automated.

Benefit
> The process automation increased the operational efficiency and quality
> After the process transformation, overall operational efficiency increased by 38%
Optimizing Resources to Streamline Operations

In order to become the preferred service provider in Asia-Europe, the operator had an immediate need to improve its competitive position by attracting new subscribers while coping with the challenges of network expansion. This called for a tighter and more efficient control of costs associated with resolving network faults. Optimizing field resources across a vast geography and large urban populations of Asia-Europe was a major problem for the operator.

**Automated Operations**

The solution was to focus on standardization, automation, the use of common tools and the streamlining of processes across its large field maintenance organization. Huawei’s experts first assessed the operator’s current dispatch processes and business rules. Next they integrated Huawei’s Workforce Management system with the operator’s existing trouble ticketing solution to dynamically optimize the allocation of field resources to trouble tickets.

**Impactful Improvements**

The new system already helped the operator achieve the following results:

- Work Orders (WO) per day per person: 2.2—>2.6
- Maintenance efficiency: increase 15.2%
- Field engineer: reduced 2 field engineer teams

A Top Quality Network

A Middle East operator was able to capitalize on their ability to quickly deploy network infrastructure with high quality and performance. The introduction of new commercial applications which incorporate the latest technology are complicated and costly. In an effort to further improve network performance, reduce O&M costs, and enhance end user satisfaction, the operator made a corporate commitment to build the best quality network that provides unparalleled services to their customers.

**Quality and Efficiency Improvements**

Quality and efficiency delivered through Huawei OSS solutions include Fault Management, Service Desk Management, Workforce Management and Performance Management. These solutions enabled the operator to rapidly generate dashboards, perform real-time monitoring and top down analysis of various network issues and problems.

- Fault handling capability of the FO improved dramatically to 55%
- Fault handling MTTR was below SLA Compliance.

Since the implementation of the above solution, the operator has secured its dominate position in Middle East’s MBB market by consistently ranking top in MBB user experience for 2G & 3G network quality!

Customer Voice

Through this partnership, Huawei strategically enabled our business excellence in Middle East’s telecom market...

- CTO
Support Fixed + Mobile Network Converged Operations

Operator H runs a very large fixed and 3G network in East Asia and soon will be launching a 4G network. With fixed and mobile networks converging and to maintain competitiveness in telecom market, Operator is committed to sustaining an efficient cost structure and hence are partnering with Huawei to help them achieve this goal.

Solution

Huawei’s solution was based on Fault Mgmt System, Service Desk Mgmt System and Workforce Mgmt System. By using Huawei’s solution, operator gets a standardized platform that provides the flexibility to adapt to different technologies and operational excellence in managing their network. It also helps Huawei achieve and maintain all major SLA and KPIs that were committed to the customer.

Benefit

> OPEX reduction
> Efficiency improvement in complex fix and mobile network operation

Customer Voice

Our experience so far is that Huawei is effective in up-keeping our network quality and reliability. They actually help us to enhance our overall network efficiency in an established governance model and achieve much better cost control and thereby further consolidating our leadership position in the industry.

- CEO

Less is More

A South African operator faced the following challenges:

> Increase in site alarms and work orders necessitated greater FO work efficiencies or adding more manpower (costly option)
> Unnecessary site visits
> Difficulty in localizing and troubleshooting faults resulting in repeated site visits and long restoration times

Automatic Fault Analysis

Implemented business rules analysis and definition of alarm management and work order management on OSS IT platforms. This resulted in automatic fault diagnosis, alarm process automation, and work order process automation for troubleshooting, diagnostics, and dispatch.

Remarkable Results

> Site monitoring (per person) improved on an average by ~17%
> Alarm compression rate reached 71%
> Auto TT dispatching rate reached ~87%
> Work efficiency improved by 48%
> Auto diagnosis and troubleshooting ratio reached 64% thereby saving 3 site visits per day
End to End ITR(Issue To Resolve) Solution

**Highlights**

- Alarm compression ratio: 60%
- Auto create TT ratio: 65%
- Auto dispatch and escalation: 100%
- Efficiency increased by 18%

**Background**

A South Asian provider of managed communications services to multi-national enterprises and service providers globally, needed an E2E ITR solution to improve the operational efficiency.

**Solution**

E2E assurance solution from Huawei covered monitoring, ticket handling, and field task execution with seamless integration between Huawei Fault Management System, Service Desk Management System, and Workforce Management System.

**Benefit**

- With E2E integrated solution, 43% of manual tasks were handled by the system.

Seamless Integration

**Highlights**

- Alarm compression ratio: 60%
- Auto create TT ratio: 65%
- Auto dispatch and escalation: 100%
- FO Fault management efficiency increased by 28%

**Background**

A South Asian telecommunications company with over 1.7 million active subscribers needed an E2E ITR solution to improve the operational efficiency.

**Solution**

E2E assurance solution from Huawei covered monitoring, ticket handling, and field task execution with seamless integration between Huawei Fault Management System, Service Desk Management System, and Workforce Management System.

**Benefit**

- Fast Track Delivery methodology, process optimization efficiency increased 50%
- After process transformation, the operation efficiency increased by 17%
Central Europe  
**Issue to Resolve**

- Efficiency increased by 23.6% in 2013 and in 2014 by 19.1%
- The number of FMEs reduced by 25.5%
- Sites per FMEs for maintenance increased from 70 to 105
- Resource Utilization improved from 60.5% to 84.3

East Asia  
**Test & Diagnosis**

- FCR: Improved from 34% to 64%
- Test Time: Decreased from 3 min to 60 sec
- Site Visit: Decreased from 55% to 17%

Asia-Europe  
**Issue to Resolve**

- WOs per day per person increased from 2.2 to 2.6
- O&M efficiency increased by 15.2%
- FME reduced to 2 teams

West Africa  
**Issue to Resolve**

- WOs per day per person increased from 2.2 to 2.6
- O&M efficiency increased by 15.2%
- FME reduced to 2 teams
## O&M Efficiency

**Highlights**
- Number of sites served per field engineer improved by 20%  
- Travel time reduced by 15%  
- SLA compliance rate improved by 10%

**Background**
An operator from West Africa has 11 million wireless users and more than 60 percent market share. The target for the operator is to remain competitive & reduce O&M costs

**Solution**
Unified field management platform that supports resources across multi field service and multi projects was implemented. The system is also integrated with trouble ticketing systems for automatic ticket dispatching to field engineers.

**Benefit**
- With the integrated unified field management solution, the travel time and number of site visits decrease  
- Manager has full access to field engineer’s real time status and workload for improved SLA compliance and cost savings

## Seeing is Believing

**Highlights**
- MTTR improve by 7%  
- FO Efficiency improved by 18%

**Visibility in Operations**
An operator in North Europe has deployed TT/WG/CR/HD/PT/PM systems but is facing challenges due to lack of operations visibility from their existing systems

**Dashboard for the Drive**
Integrated fault management and workforce management to operations visibility, SLA dashboard, and SLA compliance. Also, automated trouble tickets

**Performance**
- Ensured SLA fulfillment and compliance  
- Improved network quality  
- Provided operations visibility
WFM Solution

Highlights
- Yearly cost savings $800K USD
- Operational efficiency improved 20%
- MTTR reduced 15%

Background
An European Operator that has five Opcos in Latin America, needed to share their network and operations team, for site maintenance, to improve operational efficiencies and reduce cost

Solution
Huawei implemented its unified field management system for centralized resource scheduling and integrated with different network ticketing systems for automatically dispatching ticket to the field engineer

Benefit
- With the WFM solution and the ability to do data analysis and assessment the outsourcing costs reduced significantly
- Integrating the Trouble Ticketing system helped in expediting fault resolution and reducing MTTR

Efficiency in FMC Networks

Highlights
- Baseline operational costs improved by 29%
- Overall cost reduced by 11%

Background
An operator in West Africa with integrated fixed-mobile operations, currently serves 2.8 million mobile subscribers and 280,000 fixed users. The operator’s goal is to become the best provider of broadband voice services in the country within the first year and than focus on network evolution and operational efficiency

Solution
WFM system was integrated with alarms system to improve the efficiency of Field Maintenance teams. Use WFM to manage multi-project and multi-service scenarios for resource operations in an FMC network

Benefit
- Managers can evaluate FME performance based on the standardized processes and visual reports
- Ability to establish a baseline database with quarterly output on baseline costs
Customization is Key

**Highlights**
- Process delivery cycle short by 70%
- SLA compliance rate increased by 5%

**Customization for Performance**
An operator in East Europe has deployed TT /WO /CR /HD/ PM platforms but is facing challenges in long-cycle time for customizing processes and lack of an effective solution to enhance their current SLA compliance rate. They are facing pressures on increasing efficiency and reducing cost.

**Impact**
- Ability to configure process on SDM on the fly and enable rapid process customization
- SLA Compliance verification
- Improved network quality

TTM for Leadership
Huawei provided process design and configuration of the platforms and implemented BPM standards. Also provided SLA dashboard for easy verification of SLA compliance and automatic trouble ticket generation.

**Solution**
Workforce Management platform has the capability to manage all telecom field operations activity and enable the scheduling of resources by type of service, process, SLA, and leverage the same field team.

**Benefit**
- While the network grew by 3,000 sites in one year the field engineers to support the network remained the same
- Ability to upgrade sites from WiMax to LTE for added coverage and capacity

TTM & Efficiency Improvement

**Highlights**
- Operational efficiency improved 26%
- Efficiency increased 20%
- Cost reduction of 15%
- No major customer complaints

**Background**
A West African operator that provides 2G and 3G services with some WiMax and LTE coverage has about 45% of the market share. The operator wants to reduce OPEX and improve TTM.

**Impact**
- Ability to configure process on SDM on the fly and enable rapid process customization
- SLA Compliance verification
- Improved network quality
Tackling Troubles for Excellence in Experience

A operator in East Asia provides High Speed Internet and VoIP to 3 million customers. Every month there were 20,000 Trouble Tickets (TT) opened and 200 of them were escalated to head office by customers due to SLA non-compliance.

**Auto Diagnosis & Dispatch**

Based on Huawei’s Test & Diagnosis solution integrated with EMS, TT system, and inventory management system the auto diagnosis of TT diagnosis to filter home network issues and return to CC for resolution. Provide Auto-dispatch of TTs to the exact department (based on fault localization) for resolution.

**Impactful Experience**

- This enabled the operator to deal with customer complaints more effectively, resulting in reduced time and costs and a better customer experience.
- This allowed the operator to focus on complex issues rather than the mundane and trivial.
- Some of the impact the solution had on the network include:
  - FCR increased by 40%
  - TT handling time in NOC reduced by 4 minutes
  - Unnecessary field visits reduced by 30%

Impactful Performance

- Alarm compression ratio: 95%
- Auto/semi-auto TT creation: 70%
- Auto TT acceptance: 98%
- WO auto creation: 90%
- TT synchronize with WO: 100%
- Auto TT closure: 70%
- FO operation efficiency improved by 44%
- SDE operation efficiency improved by 54%

Seamless Migration and Transformation

A North European operator, which serves 70% enterprise users, was facing low operation efficiency and lack of effective solution to enhance the FTR, shorten MTTR, reduce human error, and improve service quality.

**Higher Operational Efficiency**

Huawei was responsible for migrating the operator’s legacy OSS system successfully, and improved fault handling efficiency by transformation. E2E fault handling automation, unifying and regulating TT handling, avoiding duplicated, non-effective TT was also provided. Power and environment fault handling with zero touch was delivered.
Best of Suite Inventory Management

A Oceanian operator has various legacy inventory systems in its OSS environment. It faced the challenge to serve its enterprise customers with more efficiency to retain customers.

Solution

Huawei provided an end-to-end inventory management system to manage Logical and Physical Inventory, generate asset report and automate service design.

Benefit

- Service design time reduced from hours to minutes
- 400% improvement in design efficiency
- Rework reduced by factor of 3-4 times
- Complete service order provisioning cycle reduced by up to 2 days per service
- Lead time on service design reduced by up to 20%
- Design once automation improved data accuracy to 99%

East Asia
Issue to Resolve

- Optical cable line maintenance quality increased by 20%
- Resource management cost per month reduced by 15%
Maintaining Leadership in the Marketplace

A North American operator with 2.6M customers provides both Mobile & Fixed Network Services. Since privatization of the Telecom Service in North America, competition has increased and with that the need to improve efficiency, customer satisfaction, and reduce cost.

Visible Operations

Huawei’s solution was based on SDM/WFM platforms to centralize ticket management and standardize processes with e2e visibility on operations thereby improving FO/FME efficiency.

Excellence in Operations

The solution from Huawei enabled the operator to deal with customer problems more effectively and provide a better customer experience. The operator also was able to increase their market share and excel in operations and quality. Below are few key KPI’s that improved significantly:

- MTTR decreased by 13%
- WO auto create rate improved by 63%
- TT dispatching SLA improved by 5%
- Work efficiency improved by 19%

Improve Customer Satisfaction and Experience

A Northern South American Operator with 3 millions customers was facing high levels of customer complaints. Repeated Customer Premises Equipment (CPE) issues and network problems were taking a long time to resolve, resulting in a high level of calls to the customer care centre and the NOC. The operator was suffering with increasing OPEX and growing levels of customer dissatisfaction.

Fast resolution of CPE Faults

With the introduction of Huawei’s Test & Diagnosis solution, the operator was able to remotely support home network services more effectively. Network engineers where able to quickly identify root cause, reduce down-time and optimize the utilisation of field staff.

Enhanced Experience

- Improved customer satisfaction and experience.
- Reduced OPEX.
- Enhanced utilisation of NOC & field service engineers.

Excellent in Operations

The solution from Huawei enabled the customer to deal with customer problems more effectively and provide a better customer experience. The operator also was able to increase their market share and excel in operations and quality. Below are few key KPI’s that improved significantly:

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- TT dispatching SLA improved by 5%
- Work efficiency improved by 19%

Customer Voice

Customers dissatisfied with high levels of CPE issues, many faults repeated and hard to find the root cause.

- NOC manager
**Field Maintenance Improvements**

**Highlights**
- Site maintenance cost reduced 30%
- Travel time reduced 10%
- MTTR reduced 13%

**Background**
The mainstream CDMA network operator in West Africa has to meet the challenge of cost savings and field engineer utilization efficiency improvement.

**Solution**
Huawei provided the WFM solution in which field teams could be shared across operators in a RAN sharing scenario. WFM also provided security management to keep network information secure and accessed by authorized users only.

**Benefit**
- Field engineer can do active and passive device maintenance in the same region
- Field engineer travel time reduced and recovery time of site faults improved

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**Speedy Fault Isolation & Demarcation**

An operator in East Asia lacked the tool to diagnose, isolate, and demarcate the problem as result CC delivered almost all customer complains to NOC. TTs were transferred among several Bus, resulting in very inefficient TT handling, high OPEX, and poor customer satisfaction.

**One Click Fault Location**
Test & Diagnostic solution provided one-click quick fault location to help reduce incorrect TT delivery, integrated T&D with service probes to help NOC monitor service quality.

**Speedy TT Resolutions**
- Improved efficiency in TT handling and fault recovery
- Support O&M process optimization and improve customer satisfaction
- Enable the operator to expand broadband market share under fierce competition
  - FCR increased by 50%
  - TT handling time in NOC reduced by 7 minutes
  - Unnecessary field visits reduced by 45%

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**Customer Voice**
It’s pretty valuable to find out where fault happens firstly and transmit to exact departments for solution.

- NOC manager
Improved Efficiency for Impactful Experience

Complex multi-vendor network with stand-alone fault management systems and lack of standard processes in Southern-East Asia

E2E Visibility

› Enhance end-to-end processes across multi-vendor environment.
› Integrate multi-vendor equipment alarms to provide unified surveillance, alarm compression and auto-dispatching of trouble tickets.

Excellent Experience

› Improved network quality
› 30% of NOC engineers’ time was saved, allowing them to focus on network analysis & optimization.

Highlights

Team Efficiency

Optimize and streamline systems & processes
Team Efficiency improved > 30%
Auto-dispatching of trouble tickets
Shorter fault resolved duration
Faster customer response

Improved Customer Satisfaction

Excellence in Network Quality

An operator in Southern-East Asia with Multi-Vendor network has a need to increase the efficiency and reduce the cost of performance management

Efficiency Improvements

› Implement E2E fault, performance, change and complaint management system.
› Clearly defined SLAs between Huawei & subcontractors.

Impacts

› Helped operator increase team performance by 30%, and reduce manpower by 10%

Highlights

Network Quality

Improve Network Performance
Network Call Setup Success Ratio > 95%
High level Performance
Real-time Dashboard
Performance Thresholds

Real-Time Network Performance
Excellence for Converged Networks

An operator in South Asia has gone through 2G & 3G network convergence but has caused the efficiency to degrade and network quality suffered.

**Monitoring Faults**
- Integrated monitoring via Fault Management system
- Alarm compression in Fault Management system

**Efficiency Improvements**
- Reduced Capex
- Increased efficiency and centralization of O&M resources.

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Proactive Performance Measures

Multi vendor network operator in Northern-West Africa is faced with re-active decision making due to manually generated performance reports.

**Automatic Reports**
- User-defined performance report template developed.
- Trend, comparison and drill down analysis helped locate system failure in real time.

**Impact**
- Helped operator increase team performance by 100%, and reduce manpower by 50%.
East Asia
Issue to Resolve
> WOs per day per person increased from 1.8 to 2.2
> O&M efficiency increased by 22%
Enhance Problem Handling

An East Asian operator is committed to increasing customer satisfaction, improving operation and maintenance efficiency and enhancing brand competitiveness. However, lack of tools to effectively diagnose and understand Customer Premises Equipment (CPE) problems was impacting its ability to meet its objectives.

Enhanced Service Quality

With Huawei's Test & Diagnosis system the operator was able to remotely diagnose customer CPE problems, restore service online or quickly dispatch an engineer to site armed with the necessary information to resolve the problem.

Impactful Performance

» Improved customer satisfaction through fast resolution of CPE faults.
» Efficient utilization of NOC and field maintenance staff.
» Enhanced competitiveness through superior service.
• FCR improved by 70%
• Field visits reduced by 60%

Fault Isolation in Complex Network

An operator in East Asia built fixed broadband network and provides FTTX High Speed Internet service, PTN Internet line and SDH data line. Multi-Services, Multi-Technology, Multi-Vendor equipment makes fault locating challenging resulting in high OPEX and poor customer satisfaction.

Proactive Test & Diagnosis

Huawei’s E2E, multi-service, multi-network-technology Test & Diagnosis (T&D) system that can deliver:

» One-key automatic testing and periodically proactive testing for NOC engineer
» Mobile APP test solution for field engineer

Impactful Improvements

» Improve operator efficiency in locating residential and enterprise services
» Enable operator to expand broadband market share under fierce competition.

Highlights

» FCR increased by 50%
» 75% of TTs diagnosed for RCA by T&D in one click
» Unnecessary field visits reduced by 35%

Customer Voice

An E2E, multiple-access-technology-supported Test & Diagnosis solution is what we badly need.
- NOC manager

Customer Voice

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» Enhanced competitiveness through superior service.
• FCR improved by 70%
• Field visits reduced by 60%

Customer Voice

With Huawei’s Test & Diagnosis solution we were able to quickly and effectively identify and fix problems. Our engineers are now more empowered and take great pride in remotely resolving customer service issues.
- NOC manager

Customer Voice

An E2E, multiple-access-technology-supported Test & Diagnosis solution is what we badly need.
- NOC manager
**Simplified Operations**

**Solution**
Huawei’s OSS solution with built-in eTOM compliant processes as applied to NOC operations, helped the operator achieve seamless transformation.

**Background**
A joint venture of East Asia telecommunications operator was facing increased competition and in house built tools were unable to meet the business requirements. Hence, the operator looked for provider with advanced OSS systems to simplify their operations.

**Benefit**
- The standardized incident management increased SLA compliance and reduced outages.
- The risk analysis and post review of change management process decreased the risk of network changes and made monitoring and tracking of network changes easy.

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**ITIL Based Application Management**

**Solution**
Huawei’s OSS solution supports the OCS operation and maintenance which is managed as part of the ITIL process. Incidentally, the OCS application is also provided by Huawei.

**Background**
A leading CSP in South Asia that provides mobile, broadband, and Digital TV services is rapidly increasing their subscriber base and the stability of their billing system is of a key concern to them.

**Benefit**
- The incident, change, and problem management along with fulfillment processes made the OCS operation seamless.
- The downtime of application and infrastructure of OCS decreased significantly.
Exceeding Customer Expectations

Highlights
- SLA compliance rate increased by 5%
- MTTR decreased by 16%
- Process delivery cycle reduced by 52%

Need for Operational Excellence
As the leading integrated telecommunications operator in Southern-East Asia with over 2M customers had the objective of achieving higher operational efficiency & network quality with an OSS solution

Exceeding Excellence
Huawei’s OSS solution with built-in eTOM compliant processes helped the operator with seamless operations transformation. Provided process design and configuration of the platform with standard BPM processes along with SLA dashboard

Impactful Experience
- Fast Track Delivery methodology increased process optimization efficiency dramatically
- SLA compliance rate was over 99%
- Network quality was enhanced

Simple Systems, Seamless Service

Highlights
- SLA compliance rate increased by 8%
- Process delivery cycle reduced by 61%

Simplicity in Operations
An African operator with operations in Africa wanted to outsource their network O&M to Managed Service Provider to achieve higher operational efficiency and network quality with high quality OSS solution

Seamless Operations
Huawei’s OSS solution with built-in eTOM compliant processes helped the operator with seamless integration between Fault Management System, Service Desk Management System, and Workforce Management System. Provided process design and configuration of the platform with standard BPM processes along with SLA dashboard

Impactful Service
- Time to Market decreased from months to weeks
- Fast-track delivery methodology increased process optimization efficiency dramatically
- Network quality was enhanced
Performance You Can Count On

Tracking Troubles
A Global Operator based in Middle East with total subscribers of over 44M is facing challenges to improve their KPI’s, TT SLA’s, overall operational efficiency

Value Creation
Huawei’s solution included alarm correlation, fault management automation, and service transformation to reduce frequency of alarms, improving of TT SLA compliance, improvement in operational efficiency and network quality while reducing operations cost in NOC

Increased Performance
- Improved quality of network
- Efficiency improvement in NOC to enable NOC engineer’s to focus on network analysis & optimization

Kicking up a Notch with O&M

Operational Improvements
A network operator in South Asia with Multi-Vendor network O&M has faced challenges with poor network quality, low efficiency, and lack of skilled staff

Automation for Efficiency
Huawei integrated alarms from Multi-vendor equipment with alarm compression, provided unified surveillance, auto-dispatching of TT, process configuration, SLA dashboard, and TT automation

Impact on Service Delivery
- With the Fast Track Delivery methodology, the process optimization efficiency increased dramatically
- SLA compliance rate over 99%
- Network quality would be enhanced
East Asia
Issue to Resolve

> Resource requirements reduced to 40 staff per month
> Sites per FMEs for maintenance increased by 17.8%
> WOs per day increased by 45.5%
> O&M efficiency increased by 17%

Northwestern Europe
Service Desk Management

Efficiency in First Call Resolution

A Middle East operator’s home network is increasingly becoming complex and customers are demanding better service experience. Traditional way of handling customer complaints is not fast enough and fault isolation, localization, and troubleshooting is taking too long thereby causing serious impact on customer satisfaction.

Fast Fault Resolutions

Huawei’s Test & Diagnosis(T&D) solution provides one key diagnostics to complete the end to end fault diagnosis, fault location, isolation and resolution, and to ability to do multi-failure analysis for RCA

Satisfied Customers

> FCR increased by 60%
> Reduced by 12 minutes per TT in NOC
> Field visits Reduced by 70%

Customer Voice

Huawei T&D system is excellent in improving O&M efficiency and complaint interception while onsite experience.

- NOC manager
A fixed network operator in East Asia was struggling to identify and resolve Customer Premises Equipment (CPE) problems. The Customer Care and Network Operation centers were inundated with customer complaints, in addition inefficient utilization of engineers was impacting staff morale and customer satisfaction.

**Enhanced Network Visibility**

With Huawei’s Test & Diagnosis solution the operator was able to integrate with other internal support systems to provide an enhanced end-to-end network visibility for both Customer Care and NOC teams.

### Improved Experience

- Improved network resource utilization and effectiveness.
- Fast resolution of customer problems.
- Increased customer satisfaction and brand image.
  - FCR Increased by 58%
  - TT Handling time reduced by 5 minutes.
  - Unnecessary field visits reduced by 30%

### Quality You Can Count On

A North European network operator, owned by a joint network sharing partners, has the goal of providing the best service the market can offer and is always looking for ways to enhance operational efficiency to create a competitive advantage in the market place. Key goals for the operator are to ensure continuous availability of the network, high network quality, and superior customer experience.

**E2E Visibility**

Based on Huawei’s centralized OSS solution in Romania, following support functions of operations were provided:

- Service Desk (Tech Support)
- Network Surveillance
- Fault management
- Problem and Incident Mgmt
- Performance Management
- Change & Configuration management

**Simplified Operations**

- OPEX reduction by centralized solution
- Simplify, unify vendor management
- SLA fulfillment

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**Customer Voice**

The great achievement you have made so far and we really appreciate the work you are doing on a daily basis.

- Director of network operation
Remote Delivery

Background
An Opco in Africa belonging to a global provider of managed communications services needed E2E ITR (Issue to Resolve) solution for which they engaged Huawei

Solution
Based on the OSS systems deployed in India Ghub, Huawei provided remote access service to their African Opco

Benefit
- TCO decreased more than 50%
- Time to Market decreased from months to weeks

Secure Network

Highlights
- 10% less field engineers needed
- 26% increase in operational efficiency
- 82% Process Standardization rate
- “Zero accident, Zero down-time” with excellent KPIs in World Cup

Background
A Southeastern South American operator with a 30% market share that provided services for the World Cup in Southeastern South America seeks to further increase its network security and create highly efficient operations team

Solution
Huawei implemented its Assurance solution to manage 5 states and 300+ field engineers. The solution helped the operation team with process improvement, skills and competency enhancements, and efficient utilization of field engineers

Benefit
- TCO decreased more than 50%
- Time to Market decreased from months to weeks
Running Seamless Network

A Northeastern African operator faced the challenges of running a complex multi-vendor network with disparate systems that made issue management and resolution very difficult.

**Operational Enhancements**

Huawei’s solution was based on Service Desk Mgmt System and Workforce Mgmt System. Huawei worked with the operator to develop a step-by-step approach to implement business enabling systems with minimal impact on operations.

**Impact**

Efficiency improvement by 30% through automatic tools implementation.

Excellence in Converged Services

A Southwestern Asian operator wanted to establish the best quality network and provide innovative & advanced ICT services.

**Solution**

Huawei’s solution was based on Fault Management, Service Desk Management, and Performance Management to realize E2E SLA/KPI compliance across network & IT and provide E2E Service Assurance.

**Benefit**

- Efficiency improvement
- Improved SLA/KPIs
- Quick fault demarcation
- Faster new service launch time
Sustain Growth and Maintain Leadership

A Southwestern European operator is growing rapidly and it needs to differentiate itself from its competitors. The operator aims to improve performance and efficiency in operation and maintenance of the network so it can gain competitive advantage in the market.

Solution

The operator chose Huawei as their long time partner. Huawei is committed to transforming the current OSS platform and IT systems in order to efficiently manage NOC and Field Maintenance teams. Huawei solutions include a complete suite of KPIs with a clear focus on measuring and improving quality in key areas.

Benefit

- OPEX reduction
- Simplify and standardize vendor management process
- Pre-defined and predictable high network performance
- Focus on customer growth, business development, and value-added services

Customer Voice

This agreement will allow us to sustain the continuous growth of our business and maintain our leadership in terms of innovation and quality of service. We restore our confidence in Huawei not only as our main technology provider, but as a partner in one of the main pillars of our business.

CEO

Quality Service Assurance

A Southern North American wireless operator uses EMS for its network operations but is facing challenges with having to support Multi-vendor network, Silo’s in operations and issue resolution taking longer time, on an average 178 minutes for critical issues.

Solution

Huawei’s solution was based on E2E Assurance providing Fault Management, Service Desk Management, Performance Management, and Workforce Management. The solution included:

- Unified monitoring of fault & performance management to improve monitoring efficiency
- Auto root cause correlation analysis to realize fast root cause identification and resolution in a multi-vendor network
- Auto TT creation

Impactful Assurance

- MTTR reduced from 178 mins to 85 mins
- SLA compliance increased from 86% to 98%
## Staying at the Top of The Game

A Southern-East Asian operator was looking to improve their efficiency, reduce cost, and have more visibility on field operations had asked Huawei for help to meet their goals.

### OSS Solution

Huawei provided its OSS solution (Performance Management + Fault Management + Service Desk Management + Workforce Management) for proactive performance management, Fault Management for alarm compression, Service Desk Management to standardize NOC operations, and finally Workforce Management for visibility into field operations. This solution improved FO/FME efficiency.

### Marked Improvements

- Performance monitor team decreased from 40 to 8 persons
- Alarm compression rate in RAN 83%

## Top Notch Service

A Latin American operator is focused on providing excellent service, ensure SLA compliance and keep network availability at 99.955% in each site (19.44 minute with service affecting).

### Network Availability

Based on Workforce Management system, Huawei provided the solution which allowed full visibility into field operations, and reduced field engineers required for site maintenance thereby reducing field maintenance cost and improving SLA compliance along with network availability.

### Impact

- Improved field operation efficiency
- Achieved SLA compliance & network availability targets
  - Network availability keep on 99.955%
  - UR increased by 23%
A service provider in Southern-East Asia was determined to stay competitive by improving O&M efficiency through transformation and optimize their cost structure.

**Seamless Operations**

Huawei’s solution was based on Service Desk Mgmt System. Huawei worked with the operator to develop a step-by-step approach to implement business enabling systems with minimal impact on operations.

**Simplified Processes**

- OPEX reduction
- Simplified O&M (fixed & mobile network)
- O&M efficiency improvement by unified system

**Impact**

- Reduced Alarms & FO monitor/troubleshooting workload.
- Accelerate the problem resolution (SLA) from customer complain, improved customer satisfaction.
- Improve the network availability
  - Alarm compression rate in RAN 89%
  - Complaint resolving time decreased by 30%
  - Work efficiency increased by 21%

An Oceanian operator was struggling with customer complaints due to inadequate network design & lack of technical expertise.

**Operations Excellence**

Solution involved automatic alarm compression and centralized alarm monitoring. Defined SLA & standardized processes for customer complaint handling, centralized ticket dispatch and monitoring.

**Impact**

- Reduced Alarms & FO monitor/troubleshooting workload.
- Accelerate the problem resolution (SLA) from customer complain, improved customer satisfaction.
- Improve the network availability
  - Alarm compression rate in RAN 89%
  - Complaint resolving time decreased by 30%
  - Work efficiency increased by 21%
Quick Turnaround

An operator in Eastern South America faced the challenge of reducing problem resolution time for remote areas, keeping high network availability, and improving staff utilization rate at remote areas.

High Efficiency

Based on Workforce Management system, provided visibility to field operation and increased work loads of idle engineers. Increased field engineer efficiency and improve SLA compliance rate along with network availability.

Benefit

- Improve network availability for remote areas.
- Improve customer satisfaction for remote area.
- Improved field operation efficiency.
  - MTTR decreased by 9%
  - Travel Time decreased by 10%
  - UR increased by 10%
  - Work efficiency improved by 11%

Trouble Free Network

An fixed operator in Northwestern South America wanted to increase efficiency in field maintenance and reduce cost.

Solution

Huawei implemented its Workforce Management solution for FLM and NOC in their multi-vendor optical networks.

Benefit

- Decreased 9 FME & 15 assistant
- Vehicle decreased by 5%
Coping with Competition

A Southern-East Asian operator with multi-Vendor network O&M needs to increase the efficiency and reduce the cost of performance management.

Solution
E2E fault, performance, change and complaint management.

Benefit
- Helped operator increase team performance by 30%, and reduce manpower by 10%.
- Network quality assurance: call Setup Success Ratio at 95%.

Moving on Up

A South Asian operator with 2G&3G network convergence, thousands of sites was facing challenges with low efficiency and poor network quality.

Excellence in Service
Huawei solution was based on Fault Management, Service Desk Management, and Performance Management to increase efficiency and provide high network availability.

Impact
- Network quality assurance: wireless network Availability at 99.99%.
- Increased efficiency of 10% and centralized O&M.
Speedy Success

A Northern-West African operator with multi-vendor network wanted to increase efficiency and generate the performance report manually.

Speedy Solutions

Huawei solution was based on Fault Management and Service Desk Management. Provided User-defined report templates that met customer demands while trend comparison and drill down analysis helped locate system failure in real time.

Benefit

- Helped operator increase team performance by 90%

Performance Under Pressure

A North African 3G operator with 30M subscribers and a Multi-vendor network was facing challenges with power outages two to three times a day. This generated massive alarms, especially power & OOS alarms caused by frequent power outages leading to repeated TT resulting in TT delays and SLA non-compliance.

Speedy Automation

Huawei Fault Management system was integrated with multi-vendors EMS. Through alarm correlation, fault management automation, and service transformation we were able to reduce total alarms, promote TT SLA compliance, and improve operation efficiency, quality while reducing NOC operation cost.
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