

FIELD SERVICE 2.0

IMPROVING THE FIRST-TIME FIX RATE

STRATEGIC WHITE PAPER

Communications service providers (CSPs) with fixed networks are faced with declining margins, intense competition and demanding customers with high expectations. The stakes could not be higher.

In this environment, CSPs are focusing on increasing customer satisfaction by improving their field service, which is often the only face of the company to customers. A good field service experience can make the difference in determining customer commitment and loyalty.

The ultimate goal with every service event is a first-time fix. It is about getting the right technician to the right place at the right time to get the task right. Field service organizations able to achieve this goal satisfy and retain more customers, increasing service profits.

This white paper reviews some of the business drivers that are behind the new focus on field service as a customer satisfaction tool. And based on Alcatel-Lucent real-world practice, it examines how CSPs are leveraging enabling technologies to revolutionize today's field service process and enhance the customer experience.

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INTRODUCTION

Successful field service strives to deliver excellent customer service while also working as efficiently as possible, continually providing service that is better, faster and cheaper. Today, field service teams for fixed networks must also address the challenges of managing an environment of increasing complexity with new broadband services and networks — and with an ever-growing base of demanding customers who have high expectations.

Communications service providers (CSPs) know all the reasons why they need to boost first-time fix rate: to improve customer satisfaction and field service profitability, and to avoid the cost of trucks for a second (or third!) service call.

Thanks to new enabling technologies, CSPs now have the tools to meet these challenges. Mobile solutions, for example, empower field service organizations to deliver a modern and highly efficient field service model.

According to Aberdeen Group research, the technologies most commonly deployed by best-in-class companies are:

- Knowledge management (41percent)
- Business intelligence (38 percent)
- End-to-end service management (34 percent)
- Customer relationship management (34 percent)
- Customer portals (34 percent)
- Remote service/smart service solutions (24 percent)

These technologies help best-in-class companies better manage service activities and improve customer retention and revenues.

This white paper reviews some of the business drivers that are behind the new focus on field service as a customer satisfaction tool. And based on Alcatel-Lucent real-world practice, it examines how CSPs can leverage a more agile, intelligent approach and enabling technologies to revolutionize today's field service process and enhance the customer experience.

DRIVING FORCES FOR OPTIMIZING FIELD SERVICE

Field service has traditionally worked as follows. Something breaks or needs to be installed. The customer notifies the CSP. Dispatch schedules a field service technician. The technician arrives, resolves the issue, then moves on to the next job.

This process repeats itself for many CSPs, many times over, every day. As a result, CSPs have become very good at scheduling technicians. However, good scheduling of technicians does not equal good field service or satisfied customers.

Field service by nature means there has been a disruption in a consumer's life or an organization's productivity. Equipment has failed, service has been disrupted and the customer is unhappy. The CSP is starting from a disadvantaged position and must turn the situation around by providing exceptional field service — or face the negative consequences of suboptimal field service:

- **Declining customer value and satisfaction:** Service typically represents the most direct interaction between the customer and the CSP. So, the service had better be good or customers will be dissatisfied — and dissatisfied customers leave.
- **High cost and low profit for service:** The burdens of inefficient field service management add up quickly. Inefficient field service increases the amount of time the customer is stuck with a non-performing asset, thereby increasing the amount of time that the customer is not generating revenue from that asset as well as increasing the amount of time that the customer must spend appeasing his/ her own customers. All of this eventually leads to lower renewal rates and, ultimately, CSP customer loss.
- **Lost opportunities for service revenue:** Inconsistent and unpredictable Service Level Agreement (SLA) compliance severely reduces the CSP's chances of winning contract renewals or upsells. The ability to upsell services and upgrades may be sacrificed forever. The CSP may be unable to expand field service offerings into new regions or markets, especially if manual processes prove too difficult to scale.

Field service management is all about getting the right field service technician to the right place at the right time — with the right service parts, tools and information — to get the service task right. Here's how lack of a first-time fix can significantly impact key field service goals.

Declining customer value and satisfaction

Putting operational costs and field service technician productivity aside, the inability to resolve issues during a first visit is very likely to cause customer dissatisfaction. The pain is compounded when service downtime persists. As the customer's experience with the service suffers, customer satisfaction declines — and the CSP may miss the chance to retain and grow the customer relationship.

Recent market research¹ reveals that a lower than 50 percent level of first-time fix can be catastrophic, resulting in a customer satisfaction level of less than 50 percent. Organizations should strive for a 90 percent and above level of first-time fixes, which leads to a 90 percent or higher level of customer satisfaction. Excellent customer satisfaction in turn leads to higher customer loyalty and retention and revenue growth.

High cost and low profit for service

Field service visits can be extremely expensive, especially those that do not lead to resolution. Cost-per-dispatch estimates begin at \$150² per dispatch and extend to \$1,000 and more depending on the industry and type of service work.

What isn't accounted for in these numbers is the opportunity cost, the amount of service work that could have been attended to with an increased focus on first-time fixes. For example, research results from The Service Council show that the average first-time fix rate hovers at 77 percent³. This means that 23 percent of service visits require some type of field service follow-up, adding cost per extra dispatch as well as taking field agents away from other service work they could have been performing.

1 [The Service Council](#), 2013 field service research

2 All dollar amounts are in US dollars.

3 [The Service Council](#), 2013 field service research

Clearly, field service technicians are one of the largest expenses for CSPs. Therefore, introducing field service efficiency is critical to meet expense objectives [1].

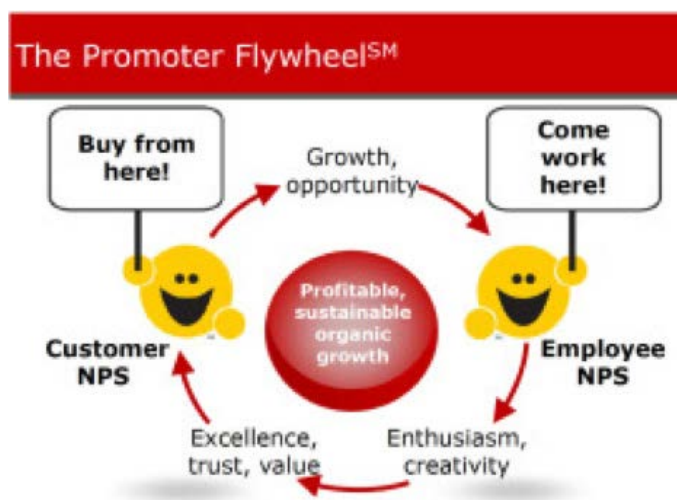
Aberdeen Group found that organizations with an 80 percent and above level of first-time fix experienced far higher customer satisfaction and retention rates than organizations that averaged a sub-50 percent level of first-time fix [2].

Lost opportunities for service revenue

In cases where revenue growth is tied to upsell, cross-sell or new service-based solutions, permission to approach customers with these offers is contingent on service work being done efficiently. The scenario where the field service technician fails to fix a customer’s issue and then tries to follow up with a cross-sell opportunity is bound to end in failure.

Very few companies can achieve or sustain high customer loyalty without loyal, engaged employees. Engaged employees are enthusiastic about their work and their company. Employee promoters power strong business performance because they provide better experiences for customers; approach the job with energy, which enhances productivity; and come up with creative and innovative ideas for product, process and service improvements [5].

Figure 1. The Promoter Flywheel



Source: Rob Markey, *Introducing the Promoter Flywheel*, [Customer Advocacy Blog](#)

Communications service providers, therefore, have good reason to want to earn the enthusiastic loyalty of their customer-facing employees — the field service technicians. When field service teams are empowered with the appropriate technologies, they become far more mobile and adaptable. As a result, they gain the ability to resolve customer issues more quickly, handle higher work volumes with less effort, and improve their overall operating efficiency. Empowering field service teams with appropriate technologies also translates into better service — and happier customers, employees and shareholders.

ALCATEL-LUCENT AND FIELD SERVICE EXCELLENCE

Alcatel-Lucent's real-world knowledge of field service revealed that the right solution for field workforce management promises both the capability and the flexibility to deliver best-in-class field service and ultimately results in excellent customer satisfaction. In mature markets characterized by increasing product commoditization and price erosion, excellent customer satisfaction is key to increasing customer value and company profits.

For Alcatel-Lucent, an optimized field service solution empowers lower-cost service methods, including remote service, self-service and fixes by phone or mail from the contact center. An optimized approach incorporates several essential elements, including:

- Automation
- Mobility
- Consolidation and collaboration

Automation

As CSPs look for ways to scale their fiber deployments to meet the exploding demand for high-bandwidth services, a more sophisticated and automated approach — one that delivers better operational efficiencies and enhances the customer experience — is necessary.

Communications service providers need the ability to automate and remotely manage broadband access network operations at three key stages of the customer lifecycle:

1. Service activation
2. Support
3. Proactive maintenance

This approach will enable CSPs to accelerate time-to-market, reduce operating expenses, and maximize their capital investments. The ultimate prize, of course, is long-term customer loyalty.

Several key technology capabilities are necessary to achieve this level of remote management, including:

- Leveraging measurement capabilities native to the available network equipment by using vendor-agnostic network elements; this approach avoids the need for manual (and therefore error-prone) external test equipment
- Numerical analysis of network measurements to enable accurate fault detection
- On-demand and routine line quality inspections to remotely and quickly determine the cause of problems after an installation, upgrade or repair
- Proactive fault detection and localization of the fiber section (feeder, collector or drop) and vectoring/bonding/binder group section
- Ability to identify and analyze long-term degradation trends
- A network infrastructure-centric database for maintaining long-term data consistency

Automating service activation

Service activation is the first point of contact with the customer, and automating this experience has been one of the key capabilities that CSPs worldwide have leveraged to jump-start widespread customer adoption of broadband services. This technology has greatly reduced the need for expensive truck rolls to the customer site to install service, allowing CSPs to rapidly grow their subscriber bases while ensuring a positive and consistent user experience.

In the same way, automated and remote broadband service activation allows CSPs to scale their new broadband access networks and services quickly without expensive truck rolls and in-home testing. In the short term, on-site technicians can use service activation tools to reduce the time spent at the customer site. Longer-term, customer self-installation and remote activation tools will in many cases eliminate the need for truck rolls altogether.

Enhanced troubleshooting and support

Whether it's during service activation or for an existing customer, field service technicians need better tools for diagnosing and resolving support issues. Improved visibility into the network and attached devices can help service technicians resolve problems more efficiently and effectively.

For example, line stability problems (typically caused by bad contacts, electrical interference or impulse noise) are often complex and intermittent, and therefore frequently go undiagnosed by legacy external test facilities. Without the proper tools to forecast or troubleshoot the issues, service providers can face significant increases in operating expenses (OPEX), longer time to repair and, most important, customer dissatisfaction and churn when problematic lines cannot reach the higher bit rates that today's consumers demand.

Two main areas where remote management can offer the greatest efficiency gains are fault localization and escalation.

- **Fault localization:** Understanding the nature of a fault and where it resides can significantly reduce the time and expense it takes to repair it. For example, knowing exactly which fiber cable is failing helps CSPs dispatch the field service technician to the site with the right tools (such as aerial fiber, underground cabling or a cabinet).

In passive optical networks (PONs), an optical time-domain reflectometer (OTDR) provides the distance to the fault, but not to the specific collector branch where the fault resides. Adding the ability to identify end-to-end behavior allows the technician to identify a common point of failure. By collecting in-line data from both views, the exact location of the fault can be determined, reducing time to repair.

In vectored networks, an impairment such as intermittent (bad) contact has consequences for the line itself, and these can also be propagated and multiplied to other "good" copper lines in the same bundle after activating vectoring.

Group or binder diagnosis adds an indispensable dimension to the diagnostic capabilities of the field service in control of no-fault-found rates. By isolating issues on a line that can disturb other lines in the same binder, field service is able to achieve higher rates of first-time fixes and eliminate wrong dispatches while satisfying and retaining more customers.

- **Fault escalation:** After a fault has been identified and its location determined, field support technicians need to be able to accurately communicate the diagnostic data in order to efficiently escalate the issue to the proper channels. Customer-repairable faults can be solved on site by a field technician or escalated to customer support.

After an issue is escalated, accurate information is key to routing the case to the proper channels for resolution. This reduces support case backlogs, clearing the support desk to work on more complex problems.

Equipping field service technicians with out-of-the-box complex troubleshooting processes otherwise available only to the Network Operations Center (NOC) results in improved problem resolution response time.

Alcatel-Lucent has a collective call driver knowledge gained from global deployments and provides a library of guided testing workflows for installation and repair activities.

Proactive maintenance

To recoup investments, broadband CSPs must not only win new subscribers, they need to nurture them into loyal, long-term customers. A key factor in this process is the ability to detect network faults before the subscriber's service is affected and then perform proactive maintenance.

Knowing when a fault was introduced that degraded performance, then correlating the timing of the fault with network maintenance, equipment changes or digging events, can greatly reduce costs and ensure an uninterrupted customer experience.

Mobility: Anywhere, anytime access

A fully optimized mobility solution is critical for excellent field service. Mobility is driving a new type of field service automation that is providing huge improvements to customer satisfaction and loyalty.

The biggest return on investment (ROI) improvements from field service mobility come from increased productivity due to more accurate scheduling/dispatch and improved first-time fix due to better access to tools such as the knowledge base, training videos and collaboration.

With this information in mind, CSPs should think through which corporate systems (knowledge bases, content management systems, online libraries of installation and repair manuals, how-to videos, etc.) should be available via mobile device at a customer site, then prioritize developing mobile clients for these systems. On the scheduling/dispatch side, CSPs need to have the GPS aspect of their mobile strategy figured out up front so they can make location-specific scheduling and routing decisions from Day 1 of go-live.

With real-time scheduling and geo-location (Google Maps) capability, field service technicians can complete more appointments per shift and reduce response time. With automated routing instructions, which include real-time traffic conditions, the drive time to appointments can be reduced. By providing mobile devices to streamline access to knowledge and enable team collaboration, technicians can perform repairs faster and increase first-time fix rates.

This process not only ensures that technicians with the right skill set are properly dispatched the first time with the right information but also gives field service technicians real-time access to critical service data 24x7. These capabilities are absolutely vital to both customer satisfaction and service profitability; field technicians can now work smarter and faster, and spend more of their time and energy focusing on the customer.

“Best-in-Class organizations prioritize the investment in mobile tools to provide technicians with better access to information in the field. The need to resolve customer issues quickly and efficiently has led to the best firms equipping the field with the right tools to find information in a complex world.”[4]

Furthermore, the explosion of powerful mobile devices, including tablets such as the Apple® iPad®, offers the perfect complement to cloud-based solutions. These devices are lighter, easier to use and often less expensive than traditional “ruggedized” service laptops and handheld testing equipment, thereby allowing service organizations to deploy them more quickly and in greater numbers.

Recent research confirms these trends. The Service Council’s 2013 research on field service and mobility found that “more than 8 out of 10 field service organizations have equipped their technicians with mobile devices.”[6]

Finally, as the outside plant is stretched to its limits by high-bit-rate triple-play services, higher-frequency access technologies and the expanded reach of broadband services, legacy external test equipment fails to adequately diagnose line stability problems. As a result, a customer complaint is often vaguely specified, which commonly calls for a truck roll, overloading the service provider’s DSL experts. Multiple truck rolls may be required, and uncertainty about the problem’s root cause and location may still remain.

Putting operational costs and field service technician productivity aside, a mobile solution that leverages line testing capabilities integrated in the network elements eliminates additional capital expenditures (CAPEX) on external test equipment. At the same time, optimized space is left for access network elements in remote locations or cabinets.

The migration to VoIP and remote digital subscriber line access multiplexer (DSLAM) deployment requires an adaptation of copper testing capabilities. This situation presents an opportunity to replace legacy external test equipment with a modern mobile line testing solution based on the cost-effective and highly distributed line testing capability integrated in the DSLAMs.

Consolidation and collaboration

There are often many different parties, from individual employees in the NOC, support center and back office to equipment and service partners, involved in delivering broadband service. Coordinating the exchange of information among all of these stakeholders is vital to a CSP’s success.

The ability to verify optical signal integrity allows the CSP to confirm the performance of the new service, notify the field technician of installation success or failure, and remotely confirm for the NOC that the work order is complete. Automating the delivery of this information improves relationships among all the parties involved. More important, it has a significant positive impact on the customer relationship.

For a longer-term view on the performance of the network infrastructure, measurements can be stored in a database. Initial measurements, also known as “birth certificates”, provide a performance baseline, and the network’s evolution and deviations can then be tracked against that baseline to identify locations in the network where the optical margin is small and service interrupts are imminent.

Maintaining separate dispatch systems or processes for different areas of business is expensive and inefficient. With a single common service management platform, CSPs can comprehensively define, publish and execute advanced service activation, troubleshooting and management logic across the service delivery ecosystem. Consolidation of dispatch systems and processes can reduce CSP expenses and increase efficiency.

CSPs can sequence, schedule and track field operations activities for:

- Service activation and service assurance work for all types of circuits and services
- All technicians : Outside, inside central/switching office, installation and repair, and cable maintenance
- A complete range of technologies, products and services, including triple play (video, data and voice) networks, fiber (FTTx), xDSL,vDSL2 and vectoring

Solutions that employ applications such as Apple® FaceTime® can revolutionize how a field service organization operates. Field service technicians no longer have to guess at solutions or employ trial-and-error methods. Instead, they can collaborate with other team members to identify problems, get answers to questions, and provide successful solutions. The best person for the job is always on the job — or only one click away.

Putting the concept to work

Alcatel-Lucent understands fixed, mobile, broadband and home networking. Managing just under 100 million copper and fiber lines with 30 percent market share and over 100 million devices, Alcatel-Lucent is positioned to help CSPs across the globe overcome the challenges of suboptimal field service and provide exceptional service while keeping operational costs in check.

In a single tier-1 environment, the Alcatel-Lucent has prevented no less than 170,000 helpdesk calls and 150,000 field visits in just one year.

Alcatel-Lucent provides CSPs with solutions that benefit all stakeholders, including subscribers, executives and field teams.

Customers receive a convenient, more personal experience, including:

- No waiting on the phone
- Narrow appointment windows
- Fast installation and repair service
- Easy upgrades to services and speed

Executives enjoy more visibility into the organization, including:

- Field and customer service performance metrics
- Visibility into work orders and the activities of field service partners
- Improved customer service and satisfaction metrics
- A simpler and faster process for developing new business solutions
- Enhanced performance tracking data and other key organizational metrics
- A single, centralized platform for managing and tracking all of a service organization's key operations

The field workforce becomes more empowered to deliver great service while completing more jobs per day through:

- Real-time field dispatch
- Powerful job management through job locations via Google Maps
- Real-time proactive diagnostics tools and dashboard
- Service upgrade prediction
- Service quality history and repair verification before leaving a site
- Identification of disruptive loop issues before vectoring activation
- No need for heavy handheld equipment

CONCLUSION

Low first-time fix rates can significantly impact key field service goals that extend to the CSP bottom line. They are most often felt in declining customer value and satisfaction, high cost and low profit in service, and lost opportunities for service revenue.

CSPs need to modernize their field service and implement new business processes that will automate manual, labor-intensive processes and empower lower-cost service methods, including automated remote service, self-service and collaboration. CSPs that adopt these methods typically do so by leveraging mobile and integrated solutions that give front-line professionals the tools they need to work more efficiently and to keep customers satisfied and loyal.

Alcatel-Lucent has been an instrumental partner with CSPs around the globe who are looking to overcome the negative effects of suboptimal field service. Field service technicians empowered with the appropriate technologies become far more mobile and adaptable. As a result, they gain the ability to resolve customer issues more quickly, handle higher work volumes with less effort, and improve their overall operating efficiency.

For more information about how Alcatel-Lucent can help improve field service management and your bottom line, go to [Motive Customer Experience Solutions](#)

ACRONYMS

CSP	communications service provider
DSLAM	Digital Subscriber Line Access Multiplexer
NOC	Network Operations Center
VDSL2	Very-high-bit-rate Digital Subscriber Line
xDSL	any Digital Subscriber Line
VoIP	Voice over Internet Protocol

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