NETSCOUT

BACKGROUND

With over 120 million subscribers and a footprint reaching 95% of the population, Telkomsel is Indonesia's largest mobile phone operator. The carrier focuses on two types of customers: pre-paid subscribers, who make up 98% of the customer base, and post-paid high-value VIP customers, who comprise the remaining 2%. This was the first time NETSCOUT's Professional Services team had been engaged to "optimize" the carrier's Radio Access Network (RAN).

Improvements At-A-Glance

- Accessibility and Capacity: Received Total Wideband Power improved by 34%

- Improved Smartphone Performance: HSUPA* total Traffic improved by 211%

- Subscriber Experience: Voice call drop rate improved by 44%

- Subscriber Experience: Data drop rate improved by 27%

*High-Speed Uplink Packet Access: a data access protocol for mobile phone networks.

About this Case Study

NETSCOUT completed the acquisition of Danaher's Communications Business including Tektronix Communications on July 14, 2015. This Case Study and the results documented precede this date.

TELKOMSEL

Telkomsel Case Study: Professional Services

Jakarta Radio Network Optimization

The Challenge in Jakarta

In the Jakarta market—Telkomsel's largest—customers consistently reported a high rate of call drops, among other general "Quality of Experience" (QoE) issues. Network key performance indicators (KPIs), however, reported the opposite: in general, the performance of the network is good enough. Customer-reported call drop issues are a problem in the pre-paid market because interruptions to calls and sessions are the equivalent to stopping a running meter. For post-paid VIPs, poor QoE, especially for smartphones, typically translates into account cancellation and customer churn for the carrier. With a reputation built on delivering quality service, Telkomsel was determined to solve the problem.

The Network Equipment Manufacturer (NEM) made several failed attempts to address the issue before recommending that Telkomsel raise capital expenditure (CAPEX) on the network to increase capacity. Wanting a second opinion, Telkomsel engaged NETSCOUT Professional Services on the basis of its industry-leading toolset and worldwide expertise. The disparity between customer-reported dropped calls and the system's status reporting suggested that the problem was related to issues in the RAN. To address the challenge, Professional Services established the following objectives for the study:

- Validate and correct call-drop issues
- Improve key QoE metrics by 5%
- Defer CAPEX network spending, if possible

Results

The Professional Services team drove improvements in retainability, mobility, and QoE which far exceeded the 5% objective. In fact, not only were double-digit percentage improvements delivered, but Telkomsel also increased capacity without increasing CAPEX spending.

Correspondingly, customer complaints dropped dramatically, helping Telkomsel deliver as a provider of world-class subscriber experiences.

The Professional Services Solution

Meeting the study objectives required specialized skills and a specialized toolset. The Professional Services team has both. Using NETSCOUT's powerful Network and Service Analyzer (NSA) toolset and leveraging many years of global experience, the team was able to implement a set of solutions which effectively addressed Telkomsel's Jakarta challenge.

Mobility Improvements Led to Increased Capacity

Identification of Hidden RNC Handover Issues

One example of how the Professional Services team utilized NSA was in its improvement of mobility parameters. After exhaustive analysis with the tool, the team identified Radio Network Controller (RNC) handovers as the root cause behind the call drops between two RNCs. They were then able to pinpoint the issue and implement corrective action, resulting in a **92% improvement in mobility** across Jakarta. The actions translated into a decrease in signaling overhead and power consumption and thus freed-up radio spectrum capacity.

Retainability Improvements Drove Better Quality of Experience

Discovery of Incorrectly Set Timers at the RNC Level

Telkomsel was struggling with a large difference between the NEM-reported Operation Support System (OSS) call drop ratio and its reported customer satisfaction levels. Customer complaints told a story of poor network service, while OSS counters reported the opposite. To resolve this discrepancy, the Professional Services team launched an analysis at the RNC level and discovered that incorrect timer settings were the cause of the customers' call-drop issues. The expert diagnosis enabled the Services team to implement changes that delivered dramatic results. Among many notable achievements, a **44% reduction in voice call drop rates** was observed, as well as a **27% improvement in data call retainability**.

As an end-result of these improvements in QoE, the call volume of complaints to customer care decreased dramatically. Many more pre-paid users are now consuming minutes without interruption and post-paid VIPs are experiencing excellent service across the Jakarta market.

"I am very happy with the HSUPA improvement that NETSCOUT recommended: this was a problem area that other vendors had not been able to solve."
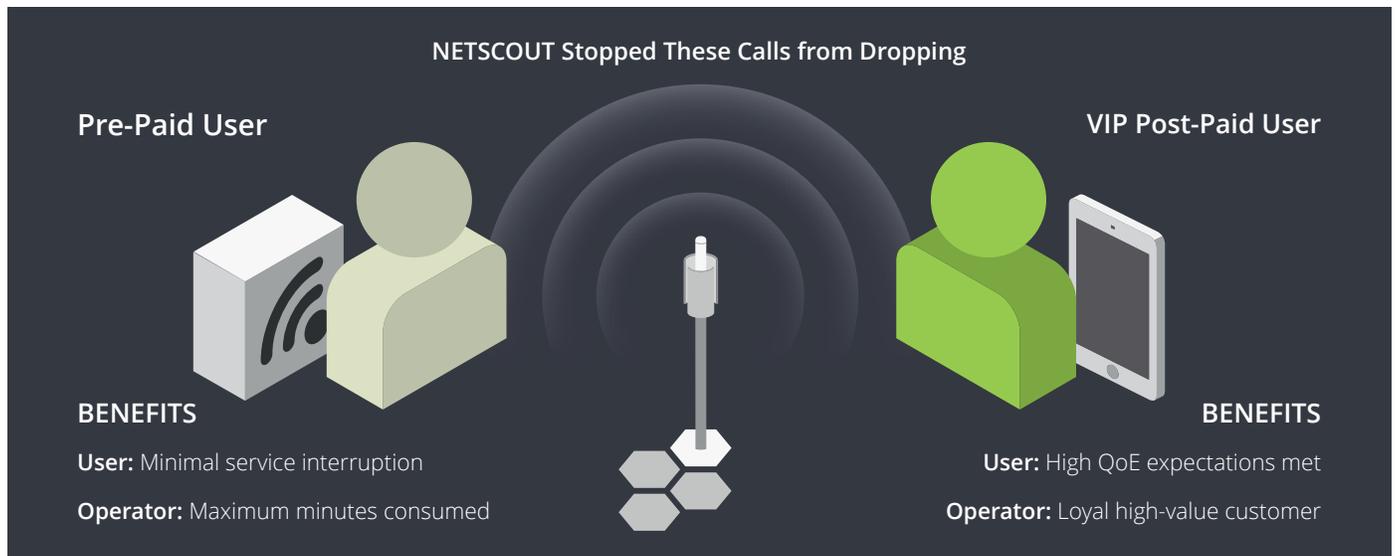
Suharno, Head of RANQ Management Division

Hanang Setiohargo, Head of Network and Service Assurance Management Group

CAPEX Spending was Deferred, Revenues Were Increased

Leveraging Network Optimization for Higher Throughput and CAPEX Deferral

Higher data throughput and deferred CAPEX are on every operator's wish list. Making them happen together is another matter. Telkomsel was considering a build-out of even more antenna sites, more backhaul links, and significantly increasing radio spectrum—all of which would have consumed large amounts of CAPEX without

NETSCOUT Stopped These Calls from Dropping

Pre-Paid User

VIP Post-Paid User

BENEFITS

User: Minimal service interruption

Operator: Maximum minutes consumed

BENEFITS

User: High QoE expectations met

Operator: Loyal high-value customer

aligned with both your business objectives, and ultimately, with delivering an improved customer experience.

"Each modification of the network needs to bear fruits in terms of revenues and QoE improvement. You are helping us by increasing our capacity without increasing our capital expenditures. We noted a significant improvement in the Jakarta area after your modifications."

Hendri Mulya Sjam, Head of Network Services and Quality Group

addressing the root causes. But with the help of Professional Services' exhaustive vendor-agnostic RAN optimizations, Telkomsel's RAN team was able to act on the multiple opportunities for increasing data flow without having to add infrastructure. The end result of this successful project is that Telkomsel was able to defer CAPEX spending and increase revenue while delivering a high-quality service to its valuable subscribers.

Our Professional Services Difference

The Professional Services team combines many years experience in network troubleshooting and optimization with world-class tools, consulting best practices, and vendor-agnostic methodologies to ensure results for our customers.

Our holistic approach to finding network

performance improvement opportunities includes:

- Analysis of capacity improvements for the existing infrastructure
- Analysis and validation of network performance KPIs
- Improvement of the User Experience KPIs
- World-class toolsets, including NSA
- Industry best practices that draw upon years of global experience
- Investigation that gleans information from all available data resources

Our services enable operators to increase network performance while reducing CAPEX and OPEX costs. To get maximum value from your current network implementation, Professional Services believes it is necessary to regularly evaluate your KPIs. More importantly, it is critical to ensure they are

Professional Services Holistic Approach to Data

NETSCOUT employs a holistic set of processes, analytical tools, and best-practices to address the pain points and focus areas of our customers. To develop our best practices, the Professional Services team leveraged industry standards and the experience gained from working in partnership with our worldwide customer base.

NETSCOUT.

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