

CYIENT

EVOLUTION OF NETWORK OPERATIONS

CELEBRATING
25
YEARS

Contents

Executive Summary	1
Keeping pace with evolving customer demands and increasing network complexity	1
Network complexity is changing the rules of the game	2
NOC and SOC: Enabling seamless network and service experience	2
EOC: Delivering an authentic customer experience	3
Effectively tracking customer experience	4
Transitioning to enable effective services and better customer experience	4
Assessing the maturity of your network	5
The Cyient advantage: Leveraging a well-defined approach	5
Staying a step ahead of customers	6
About Cyient	7

Communications service providers (CSPs) have to create an optimal balance and unify their operations between NOC, SOC, and EOC

Executive Summary

Customers are driving how communication service providers deliver services today. They are using new technologies such as GSM voice, data, SMS, USSD or other value-added services to communicate. They demand not just better networks but enhanced customer service levels as well. This shift is forcing operators to redefine services and improve their relationship with them to increase customer retention and boost their bottom line.

This paper identifies the need for operators to create an optimal balance and unified operations between the network operations center (NOC), service operations center (SOC), and experience operations center (EOC) to track customers on the network, identify, and enhance their experience.

Keeping pace with evolving customer demands and increasing network complexity

Emerging technologies, increasing competition, and innovative consumer offerings are shaping customer expectations. Today's digitally savvy customers demand services at a time and place convenient to them. Telecom organizations that put customers at the heart of their network and service operations are most likely to create a universal customer experience.

With the balance of power shifting in the customer's favor, the lines between NOC, SOC, and EOC are blurring. This means that to differentiate themselves, telecom companies need to monitor customer experience across NOC, EOC, and SOC effectively.

Fixed-line services are becoming few and far between and with the increased use of mobile services, there is growing pressure

on traditional operators to provide highly responsive services. With the growing use of smartphones and endless choices of mobile networks such as 2G, 3G, 4G LTE, as well as value-added services and broadband internet, today's customer is more aware of technology and has increased expectations from operators. To meet the evolving customer demands, various operators now offer mobile or fixed line coupled with mobile virtual network operator (MVNO) services. This has resulted in rising network complexities and intense competition, which have made the task of effectively managing networks more challenging.

To gain a competitive edge in this tough environment, service operators will need to take a holistic approach to offer a superior service experience by defining and tracking the customer's perceived service quality parameters. Network health alone is not reflective of customer experience, making it imperative for operators to invest in a robust SOC and EOC.

Network complexity is changing the rules of the game

Today, multiple devices and applications are being deployed to meet the increasing customer volume and demand for new services, adding to the network complexity. This makes the identification of experience touchpoints difficult as a particular service transaction passes through multiple stages that impact the customer experience. Every transaction step needs to be modeled into the operating support system (OSS) tools at the right time to enable the monitoring of customer experience key performance indicators (KPIs) in the EOC. Before the advent of large-scale integrated circuits, network operators added extra physical resources to boost circuit capacity. Today, physical resources are added proactively based on the monitoring and predictions of multiple KPIs.

Network operators who want to achieve their object of delivering superior services have to ensure that NOC and SOC work in tandem towards this common goal.

Customer care is emerging as one of the pivotal touchpoints impacting the customer experience. Operators will, therefore, need to focus on providing near real-time network health status to the care team to meet growing customer demands. Managing the network health itself is not enough now. Operators need to focus on the end-to-end service health and experience that the customer receives. Superior customer experience can be delivered through a right mix of NOC, SOC, and EOC.

NOC and SOC: Enabling seamless network and service experience

A typical NOC proactively monitors and resolves network faults, manages performance by measuring KPIs such as transaction success rate and transaction time, and performs basic troubleshooting through a communication grid where data from multiple sources is integrated

into a single platform. The NOC team is measured by its ability to meet operational SLAs. It continuously interfaces with cross-functional teams while responding to the fault events by isolating vendor solutions.

On the other hand, the SOC controls end-to-end service operations as well as monitors their business impact. SOC's success depends heavily on achieving the end-to-end service KPIs. It ensures seamless integration of service data from multiple sources into a single platform, enables high service quality by minimizing the level of degradation, and emphasizes cross-functional team engagement.

For network operators to succeed, both NOC and SOC need to work towards the common goal of delivering superior services. To understand this, we will use the example of Mobile Money service across the paper

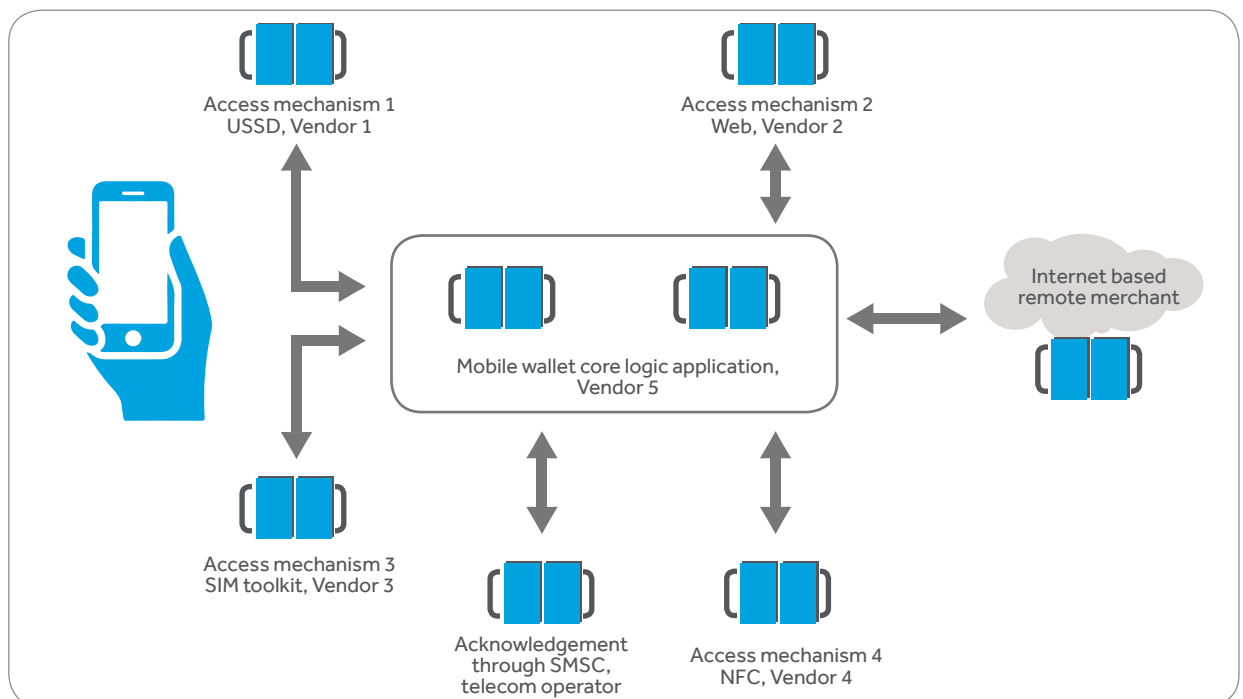


Fig. 1 | Five components of Mobile Money service



At a time when customer acquisition costs are really high, it is important to ensure that even a percentage as low as 0.01% of failed transactions is not overlooked.

(see Fig.1). Mobile Money typically consists of five components—four access technologies required to access the mobile wallet core logic and one core logic server—all provided by different vendors. When a customer initiates a transaction, it traverses from one vendor machine to another before it completes the cycle successfully. There is a possibility of the transaction getting dropped in the cycle and falling in the blind spot thus, not getting registered with neither vendor owning up the responsibility of the dropped transaction. Vendors meet their SLA and operators are the ones who lose out in this game.

These type of failed transactions typically amount to 0.01% of total transactions, a small enough percentage that allows vendors to meet their SLAs. However, this results in customer loss and attrition for operators. Imagine losing 10,000 transactions from 1,000 unique customers out of a total of one million transactions in a day. This means that when 1,000 customers initiate transactions that don't get through, operators lose that many customers. At a time of high customer acquisition costs, such a loss can have a significant impact on the bottom line. Therefore, it is highly imperative that the

NOC team (that measures network KPIs on application success) and SOC (that focuses on comprehensive transaction services) work in tandem. This approach will enable operators to track and identify lost customers and provide an authentic service experience.

EOC: Delivering an authentic customer experience

Enabling great customer experience can be a challenge in the absence of a thriving EOC. EOC is responsible for providing seamless end-to-end customer experience by measuring KPIs based on service quality parameters perceived by them. It controls the experience-related operational tasks by integrating KPI/KQI data from multiple sources into a single platform, while monitoring and mapping network and service KPIs to the customer experience. Based on the KPI success rate reflected in the customer feedback, EOC responds quickly to individual customer experience for a particular service while ensuring smooth technical operations by engaging with cross-functional teams. However, for the EOC to succeed, it is vital

Operators need to shift their focus to services to close the gap between the perceived and actual customer experience. To do this, operators need to understand the key issues impacting the customer experience.

that NOC and SOC strike a balance with EOC operations. Let's take the case of a customer who makes a repeat transaction for purchasing a movie ticket after he fails to receive purchase confirmation message. While the NOC and SOC record his first transaction as successful, the customer will end up buying an extra movie ticket, leading to cancellation and refund. For EOC, this particular transaction will be considered unsuccessful as it resulted in a negative customer experience. Also, by integrating OSS tools at the transaction stage operators can enable rapid delivery of transaction acknowledgment and can significantly reduce the overall transaction time.

Effectively tracking the customer experience

Multiple assurance tools are being deployed across the network to improve overall customer experience, but operators need to shift their focus to services to close the gap between the perceived and actual customer experience. Operators need to understand the key issues impacting the customer experience as network and service KPIs are no longer enough to assess the service performance and customer experiences in real-time.

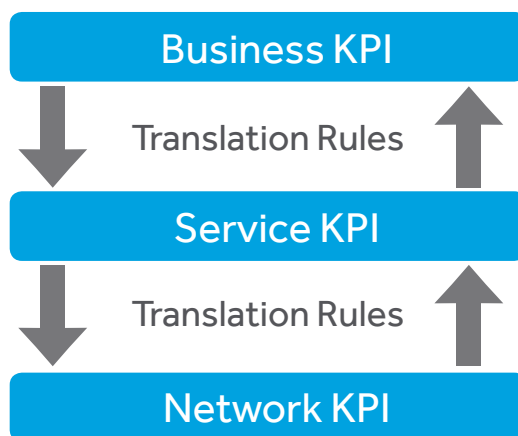


Fig. 2 | Mapping of network, service, and business KPIs

To effectively track the service performance, mapping network KPIs with service and business KPIs is essential. The business team including service and product owners as well as network teams need to work towards a common goal of achieving key objectives and KPIs. They also need to ensure the seamless translation of business KPIs into service and network KPIs (see. Fig.2)

To achieve desired results, service modeling becomes equally important as it is going to decide which operator is going to have it easy and who will pay for the lapse or ignorance. The transaction between the network and the service is important for SOC to perform effectively; whereas expansion of the transaction to business is a major factor for the EOC's success.

Transitioning to enable effective services and better customer experience

Though NOC, SOC, and EOC (see Fig. 3 and 4) provide distinct functionalities and are not interchangeable, operators looking to transform customer experience should advance from NOC to SOC and further into EOC. As illustrated by a 2013 global survey by Informa Telecoms & Media, improved service quality and customer experience management are imperative for a CSPs (communication service provider) success. Kris Szaniawski, principal analyst at Informa points out that, "The operators who do not make the transition will be at a disadvantage against competitors who can deliver a superior customer experience. An essential component of this transition is the introduction of service quality and customer experience management techniques via a service operation center."

To scale up operations from NOC to SOC and further to EOC, it is important that operators recognize their position in the maturity grid as a first step to this transition.

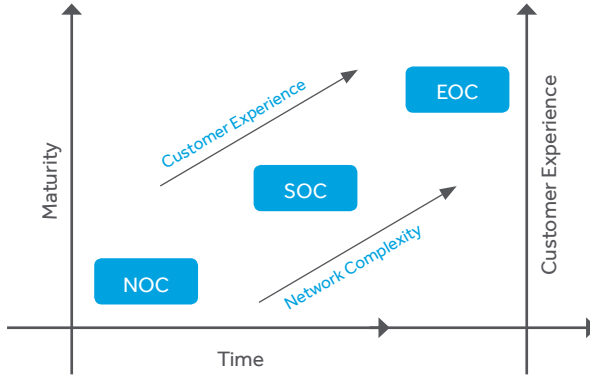


Fig. 3 | NOC, SOC, EOC mapped to customer experience and customer maturity

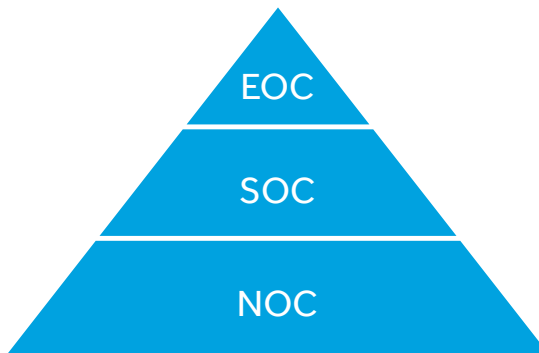


Fig. 4 | Hierarchical mapping of NOC, SOC & EOC

Assessing the maturity of your network

To scale up operations from NOC to SOC and further to EOC, it is important that operators recognize their position in the maturity grid. This can be identified by answering the following set of questions:

If you answer yes to the following, you are still managing an NOC:

- Do you still monitor only network KPI?
- Are you still firefighting or being reactive when an outage happens?
- Do business and network teams interact with each other?

- Do you still see huge optimization opportunities?

If you answer yes to the following, you are managing a SOC:

- Do you map network KPIs with business KPIs?
- Do you analyze business impact of network outage and proactively resolve it?
- Do you draw a correlation between KPIs and different domains?
- Do you gather customer feedback for services offered?

If you answer yes to the following, you are managing an EOC:

- Do you know what the service quality parameters are as perceived by the customer?
- Do you know which metrics impact customer experience?
- Are you aware of your customer segmentation and orientation?
- Do you know the usage pattern of your customers?
- Are you aware of the components of service that impact customer?
- Do you understand the gap between customer feedback and network performance KPI?

The Cyient advantage: Leveraging a well-defined approach

At Cyient, we leverage a well-defined methodology, customer experience insights, and data analytics to provide robust support to CSP operators in effectively mapping their network and service KPIs to customer experience KPIs. We believe that true customer experience can be delivered through the implementation of the right assurance tools, by driving actionable Insights, and enabling robust service modeling that can track customer experience.

We help CSPs by providing comprehensive NOC, SOC, and EOC management services using a plan, build, and operate model. This includes end-to-end consulting in service management, deployment of OSS tools, and service modeling, and ensuring their management across NOC, SOC, and EOC.

Embarking on a customer experience journey with our solution enables the creation of an efficient environment to facilitate the rapid resolution of the service issues, while optimizing operational costs. We ensure efficient management of service life cycle as well as service degradations so businesses can take the customer experience to the next level.

Staying a step ahead of customers

Customers mature faster than operators. With 5G, IoT, and loE being used for improved communications, the customers' demand for better services will outstrip the operators' capability to deliver such services. In such an environment, combining NOC, SOC, and EOC into a unified operation can help network operators create superior customer experience and better business value.

About author

Amitabh Sharma has over 15 years of experience in the telecom industry, primarily in wireless communication. He is currently working as a Senior Consultant with Cyient for service Management and assurance (SMA) in communications technology. He has proven capabilities in enhancing service quality parameters as perceived by clients for global standard NOC dashboards. Amitabh holds a degree in electronic engineering and has certifications in ITIL, ITSM, and cloud computing.

About Cyient

Cyient is a global provider of engineering, manufacturing, data analytics, networks and operations solutions. We collaborate with our clients to achieve more and shape a better tomorrow.

With decades of experience, Cyient is well positioned to solve problems. Our solutions include product development and life cycle support, process and network engineering, and data transformation and analytics. We provide expertise in the aerospace, consumer, energy, medical, oil and gas, mining, heavy equipment, semiconductor, rail transportation, telecom and utilities industries.

Strong capabilities combined with a network of more than 13,100 associates across 38 global locations enable us to deliver measurable and substantial benefits to major organizations worldwide.

For more information about Cyient, visit our website.

NAM Headquarters

Cyient, Inc.
330 Roberts Street, Suite 400
East Hartford, CT 06108
USA
T: +1 860 528 5430
F: +1 860 528 5873

EMEA Headquarters

Cyient Europe Ltd.
High Holborn House
52-54 High Holborn
London WC1V 6RL
UK
T: +44 20 7404 0640
F: +44 20 7404 0664

APAC Headquarters

Cyient Limited
Level 1, 350 Collins Street
Melbourne, Victoria, 3000
Australia
T: +61 3 8605 4815
F: +61 3 8601 1180

Global Headquarters

Cyient Limited
Plot No. 11
Software Units Layout
Infocity, Madhapur
Hyderabad - 500081
India
T: +91 40 6764 1000
F: +91 40 2311 0352

www.cyient.com
connect@cyient.com

© 2016 Cyient. Cyient believes the information in this publication is accurate as of its publication date; such information is subject to change without notice. Cyient acknowledges the proprietary rights of the trademarks and product names of other companies mentioned in this document.

Published July 2016