



Leverage network and operational data to increase customer satisfaction

Real-time network monitoring provides insights to proactively solve issues





Improving customer experience with data

Cable and Internet providers are struggling to satisfy their customers after low scores among the leading companies covered, according to a recent American Customer Satisfaction Index poll of U.S. customers. The reasons cited include helpfulness of employees, frequency of service interruptions, and call-center assistance.

Network outages are common in the industry and impact customer satisfaction. At the same time, new entrants such as Netflix and Amazon Prime have disrupted the market by delivering more consistent, personalized experiences and pleasing their consumers. Customer tolerance for service disruptions is low, increasing the pressure to deal with any service issues faster.

Driving positive customer experience is key for any industry. Every company is striving to improve experiences with tangible business results. Networking and telecommunications companies are increasingly realizing that the answer to business optimization lies in their existing networks and the ability to extract, read, and act on key data.

Capgemini's Network Monitoring and Real-time Correlation Engine (NRCE) provides a service-level health view of a network by dynamically ingesting, correlating, aggregating, and calculating points of interest (POI) based on telemetry readings and call volumes. Instead of responding to a customer outage call, companies can be proactive by addressing the problem and improving the client response.

Answering the call with data

Waiting until a customer calls to complain about a service outage is too late. In many cases, there was no awareness of a network fault and it takes a customer call to trigger action. Even when the call does come in, it may take multiple interactions with other areas of the business before there is an understanding of the root cause. By this time, there are many more unhappy customers.

Data is the key. Not only does a network produce significant amounts of data, but so do call centers, chat bots, and interactive voice response (IVR). These data sets need to be connected so predictors and early indicators of trouble can be seen.

NRCE brings polling results, alarms, tickets, topology, customer accounts, and device details into an analysis tool and management console that can be tuned for the network engineer or customer-care manager. It processes terabytes of data in real-time and identifies network issues within minutes of their occurrence to help solve problems faster.

NRCE capabilities include:

- Complex event processing
- Configurable rule-based evaluation and correlation to find and report issues or POI
- Workflow automation to address issues and connect across the enterprise
- Call deflection capabilities based on business rules
- Real-time correlation based on inquiries into a call center.

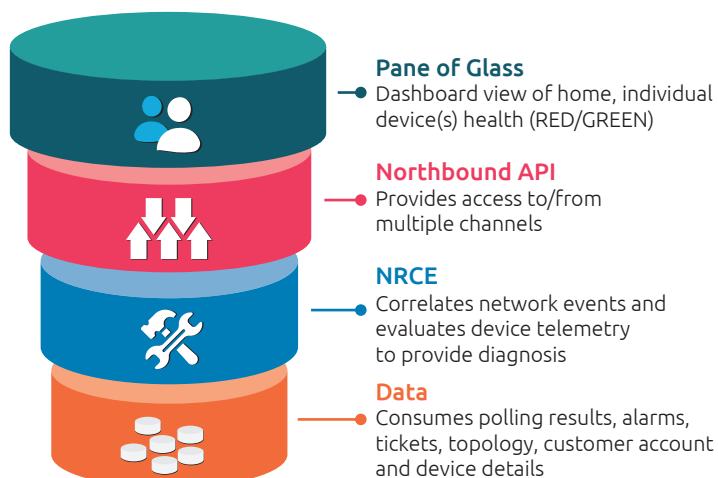
What is NRCE

Business Purpose

NRCE is a Network Monitoring real-time correlation engine that provides a service level health view. It dynamically ingests, correlates, aggregates, and calculates points of interest(POI) based on network and device telemetry readings and call volumes

Business Value & Benefits

- Promptness, accuracy & cost reduction
- Reduction in MTTR, AHT
- Reduction in avoidable truck rolls
- Uniform thresholds and metrics
- Proactive /predictive analytics



Functional Summary

- Complex Event Processing
- Rule Based Evaluation and Correlation
- Workflow Automation
- Call Deflection Module creation based on Business Rules
- Realtime Correlation based on Call received in Call center



Leverage network data to deliver better business results

NRCE brings together multiple, diverse data points to deliver real-time information that impacts the bottom line and improves the customer experience. Identifying potential issues before they become problems can deliver a number of benefits:

- Reduced operation costs related to outage issues
 - Decrease truck rolls or repeat service calls
 - Reduction in call-center volumes
 - Reduction in average calling time
- Faster resolution of network outages
 - Identify the root cause faster
- Proactive identification of potential outages that can be raised for action prior to failure
- Improved employee experience with better access to network information in a single dashboard
- Improved customer experience with more proactive regulation of issues, notification of problems, and speedier reaction to outages.

Capgemini understands how to use data to your advantage and help support your business goals. It is about harnessing information to deliver a competitive advantage. We can provide:

- **Technical design and architecture:** From the infrastructure to big-data clusters, we can recommend the right tool so your solution can scale for performance.
- **Development and delivery:** We can develop the correlation engines, APIs, and integration to both source systems and other enterprise tools such as self-service Web or mobile.
- **Business processes and rules design:** We design and develop the business rules to determine service-impacting issues, discrete system health thresholds, and workflows necessary for acting on alerts. This can be achieved either by

NRCE can be used across the enterprise

- **Field or plant technicians:** Access to dashboard and tickets to prioritize and solve issues
- **Tier-2 technicians:** Can see and act on immediate service-impacting issues and proactively identify potential problems
- **Care organization:** More informed and up-to-date information for improved client service
- **Self-service customer portals:** Proactive notifications so customers know of a service issue and how it is being addressed.

automatically raising a ticket to automated workflow or to the proper technical work group.

- **Maintenance and support:** From refining and adding rules to enhancing predictive capabilities, we can support the health of the application over time and work to integrate more advanced technology, such as artificial intelligence and machine learning.

Connecting with your customer and delivering an excellent experience increases the adoption of other service offerings. Every interaction you have with a customer should strive to differentiate, personalize, and drive loyalty.

These challenges are not new. Network outages are common, so being proactive not only reduces response costs but also improves client satisfaction. Most companies have the data within their enterprise but they do not have the right platform to bring it together to support the business. It is time to harness this data with NRCE.

Client success story

A top-10 telecommunications company in the U.S. faced the standard outage challenges of any provider of digital cable, broadband, and communications services. Improving its customers' experience depended on a solution that could collect, read, and interpret data and provide employees with the tools to respond more quickly.

It needed to process terabytes of data in real-time, so network issues could be identified within minutes of their occurrence. The company asked Capgemini to evaluate the problem and design and implement a solution. The result was a new big-data Hortonworks platform with a 40-node cluster to handle the ingestion feeds required to make real-time business decisions and identify outages. This real-time health dashboard was completed in less than nine months.

Now the company identifies issues as they occur, automatically generating tickets and sending them to the Network Operations Center (NOC) team so it can assign appropriate technician resources. A revamped architecture focused on performance and speed now processes 50,000 events per second, with APIs that respond within milliseconds.

Real inputs from the employees

As part of the process, Capgemini collaborated with the client to understand the actual pain points first hand through multiple site visits and collecting data directly from technicians using the system. This approach led to a greater adoption rate for the resulting tool, since it considered inputs from all the stakeholders during development.

After the rollout, customer-care agents and field technicians continued to provide feedback that was incorporated in multiple agile development cycles. By closely collaborating with the actual users of the system, the tool enjoyed a high adoption rate and the confidence of its users.

Delivering business results

- 30% decrease in overall truck rolls after real-time validation of outages
- 25% reduction in average call-handling time
- Reduction in mean time to resolve network outages by 30 minutes
- Automatic validation of outages
- Zero latency on Customer Care Dashboard and reduced swivel chair work
- Improved accuracy of the network topology, which improved the correlation logic and dramatically reduced fallouts for future Move, Add, Change, or Disconnection (MACD) orders.

Pre-fetch feature: As soon as a customer call begins, device telemetry data is pre-fetched and the care-center contact uses a screen with pre-populated information about the home health status. Previously, agents had to click through multiple screens to find this information before starting any troubleshooting. Providing this information immediately has reduced the average call time.



About Capgemini

A global leader in consulting, technology services and digital transformation, Capgemini is at the forefront of innovation to address the entire breadth of clients' opportunities in the evolving world of cloud, digital and platforms. Building on its strong 50-year heritage and deep industry-specific expertise, Capgemini enables organizations to realize their business ambitions through an array of services from strategy to operations. Capgemini is driven by the conviction that the business value of technology comes from and through people. It is a multicultural company of 200,000 team members in over 40 countries. The Group reported 2017 global revenues of EUR 12.8 billion (about \$14.4 billion USD at 2017 average rate).

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People matter, results count.

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