Vodafone

voipfuture

Transforming Network Operations Through Intelligent Alarming

The Challenge

Operating a global voice service at highest quality requires an alarming system to automatically detect incidents. IVC needed a more intelligent alarming model to better distinguish between false alarms and genuine incidents.

The Solution

A model was developed that understands the individual traffic patterns of each single route and generates adaptive thresholds avoiding false alarms. The model was developed collaboratively through detailed incident analysis and simulation-based validation.

The Results

IVC achieved an 80% reduction in alarms and 60% decrease in trouble tickets, which significantly reduced alarm fatigue. Instead of assessing alarm validity operations can now focus on fast remedy to incidents that matter.

About Vodafone Carrier Services

Vodafone Carrier Services (VCS) is a leading global provider of telecommunications services, managing traffic between carriers worldwide. Their network handles massive volumes of voice and data traffic across diverse international routes, serving Vodafone operating companies, tier one carriers and enterprises.

VCS's operations require precise monitoring and rapid response capabilities to guarantee and maintain service quality across their extensive global network.
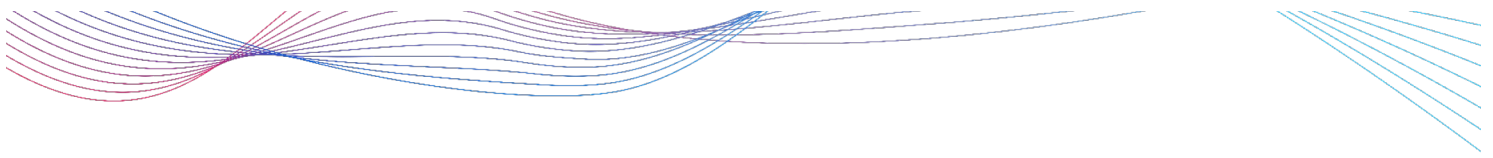
The Challenge

To guarantee top service quality, monitoring and proactive alarming are essential for IVC. Alarming was well integrated into the network management processes, however, the underlying model generated too many 'false positives' – events that look like incidents but aren't. What sounds like a nuisance is actually a costly problem when committing expensive engineering resources to non-issues. Numerous false positive alarms flooded the NOC daily, masking genuine issues and creating alarm fatigue.

The NOC must deal with:

- Complex traffic patterns and variations due to changing technical conditions
- Traffic patterns and volumes are affected by commercial decisions
- Different sets of quality criteria to reflect customer status and available routes
- Expensive engineering resources required to isolate genuine issues from normal traffic patterns
- Assessing and prioritizing issues in the context of their business impact
- Alarm fatigue developed - engineers became desensitized to alerts due to the overwhelming amount of false positive alarms

Reliable alarming is essential for proactive performance management and maintaining agreed quality of service. Efficiency in alarm management has a direct impact on operational costs, customer loyalty and control of suppliers. The underlying alarming model is therefore the key to control.
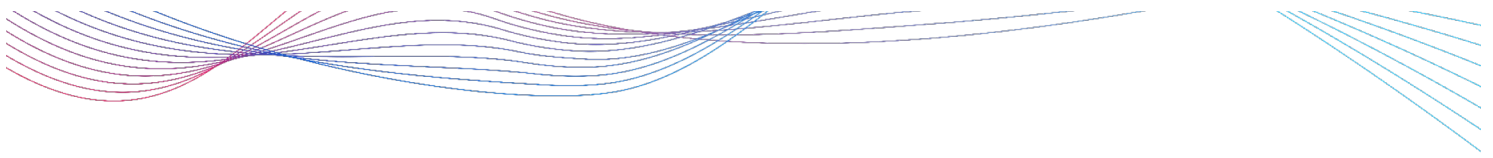
The Solution

From "Magic Button" to Innovation

After seeing Voipfuture's data analytics capabilities, Livio Pogliano, Head of IP Operations, issued an open-ended challenge: a "magic button" to deliver instant operational insights – something genuinely useful to understand traffic patterns and alarm conditions.

Voipfuture created enhanced reporting and visualizations based on IVC's business model, Voipfuture Qrystal's monitoring data and Microsoft's PowerBI Service. The first step provided intuitive NOC dashboards with integrated visualization and reporting of traffic conditions on all dimensions of the complex traffic flow.

The real innovation emerged through the continuous partnership between IVC operational teams and Voipfuture's data analysts. Real-time interactive graphs and reports created the foundation to assess traffic conditions. Joint reviews of the quality of an alarm developed the understanding of 'false positives'. An understanding to be transformed into the intelligence of the alarming model.

The Solution – Cont.

The RP2 Alarming Model

The "brain" (algorithm) behind any alarming model must master a complex task. It must decide between a genuine incident and events that might look odd, but actually constitute typical behavior. The new intelligent algorithm had to fulfil at least the following requirements:

- Consider the history of a route accounting for traffic pattern variations over time
- Distinguish service degradation from commercial fluctuations, e.g. routes with zero traffic due to competitive dynamics should not trigger false alarms when service resumes
- Fast reaction on changing route conditions
- Enable alarming for new routes within hours rather than weeks

The newly developed RP2 alarming model fulfilled all these requirements. For example, new routes now generate appropriate alerts within two days, instead of requiring four weeks of data accumulation.

Streamlined Deployment with Minimal Disruption

How to replace the brain and deploy the new model with minimal risk? Simulation capabilities enabled a side-by-side comparison - engineers could analyze identical time periods under both models before deployment

The modular design of Qrystal Intelligence allowed a safe switch over:
- Parallel operation of both models for full control
- Involve stakeholders into the verification process
- The switch over to the new model was only executed after its results were verified

The simulation environment was crucial for building confidence. Rather than accepting theoretical promises, IVC's team saw exactly which events would trigger alerts under each methodology, comparing alarm generation for the same day, week, or month.

"Thanks for your support in developing the new model and implementing it in production. As estimated by the simulation analysis, we are getting ~80% alert reduction and ~60% TT reduction. We significantly cut down on time checking irrelevant alarms."

- **Vishalkumar Borse,** IVC Operations

The Results

Dramatic Operational Improvements Through Precision Alarming

- 79.4% reduction in alerts generated
- 59.3% reduction in tickets created

New model launched on 29th January

Stats	22-Jan to 28 Jan	30-Jan to 5-Feb	Reduction in Alert	Reduction in TT
Count of Alerts	3024	622	79.4%	
No of TT Generated	345	159		53.9%

Day	Date	Count of Alerts	New TT	Date	Count of Alerts	New TT
Wednesday	22-Jan	528	67	29-Jan	498	110
Thursday	23-Jan	498	51	30-Jan	214	36
Friday	24-Jan	495	60	31-Jan	75	15
Saturday	25-Jan	302	27	1-Feb	57	9
Sunday	26-Jan	246	35	2-Feb	40	13
Monday	27-Jan	484	56	3-Feb	104	33
Tuesday	28-Jan	471	49	4-Feb	98	27
Wednesday	29-Jan	498	49	5-Feb	78	26

Operational Excellence

- Engineering teams now focus on genuine network issues rather than investigating normal traffic variations
- NOC operators gained confidence in alarm validity, eliminating desensitization from constant false positives
- Automatic network management tools receive high-quality inputs justifying immediate attention without preliminary validation

voipfuture

Watch a Demo   Contact Us