

# Rock Solid Cloud Assurance

## Success Story: Fast Growing Cloud Platform Provider

### Executive Summary

#### Challenge

For data centers, control over network quality is vital because services are completely reliant on them and they are key to future innovation

#### Solution

- > Proactive connectivity monitoring and reporting with Creanord
- > NFV vProbes for cloud production monitoring
- > CreaNODE 500 Mini probes for cloud access & enterprise monitoring

#### Result

- > Risk mitigation thanks to faster issue detection and resolution
- > Complements DCIM with visibility into latency, packet loss and VM availability
- > Enables new service opportunities and future-proof NFV capabilities

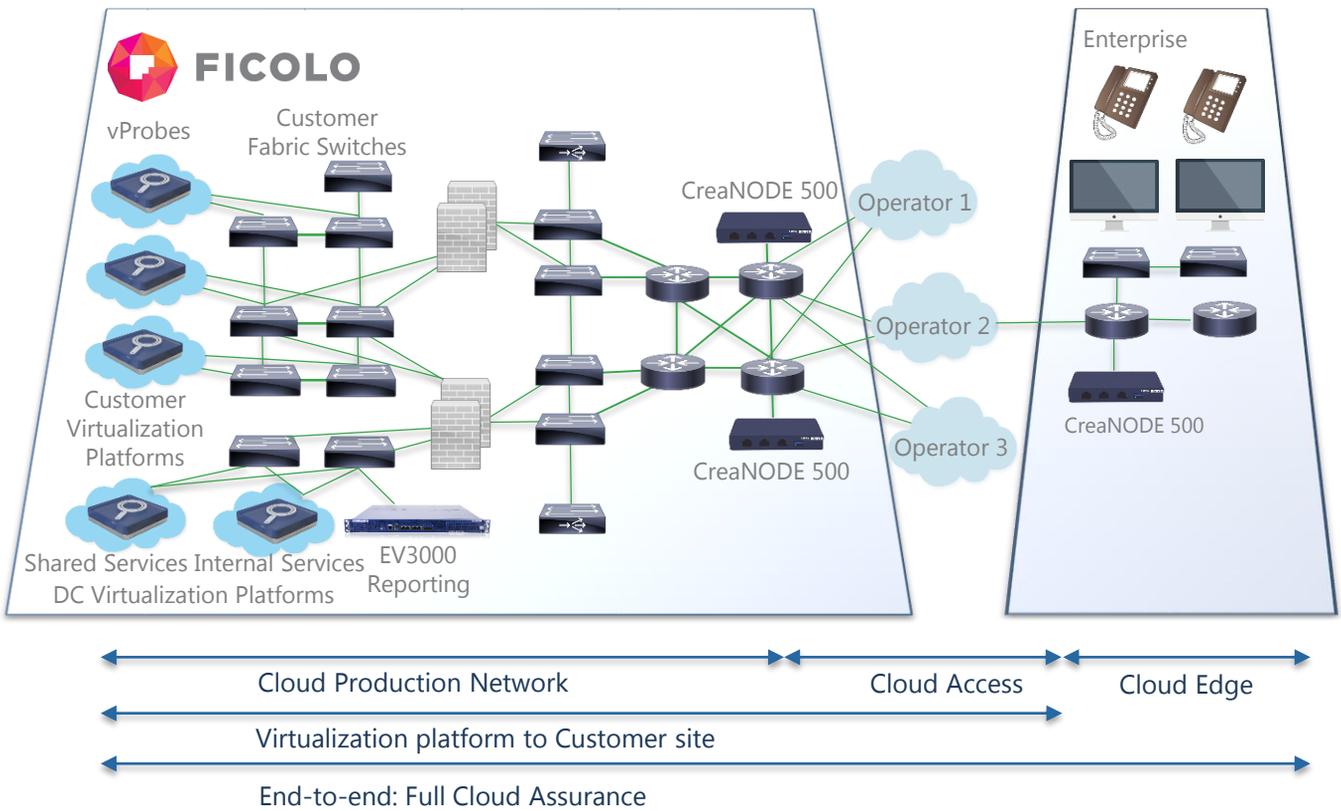
### Connectivity is Critical for Cloud Computing Success

Ficolo was the first data center to provide colocation services in Finland. It has since evolved to a fully fledged wholesale cloud and cloud platform provider. The mission is to be an enabler for other service providers delivering cloud and SaaS services to their customers in addition to traditional IT outsourcing. Ficolo operates from a set of underground tunnels, providing natural cooling and security. Connectivity or Cloud Access is either provided separately by Communications Service Providers (CSPs), or resold by Ficolo and packaged with rest of offering.

Although the market is growing fast, the speed at which the market is developing makes it crucial to evolve. Cloud platform services are highly dependent on reliable connectivity, because a cloud solution is only as good as the network services that are supporting it.

“At Ficolo critical infrastructure visibility is a must”, says Managing Director Seppo Ihalainen. “We need to be able to develop our solutions fast and we need to understand the end-to-end customer experience. Creanord provides control over both physical and virtual network domains as well as capability to test network and service layers enabling full cloud visibility and – importantly - helps us build differentiation into our services.”

## Full Cloud Assurance: Cloud Production, Cloud Access and Cloud Edge



## Monitoring at Ficolo

### vProbes at VMs

- vProbes at each customer virtualization platform. These enable measuring latency, jitter and loss all the way to the customer site and ensure that platform failures such as VM freezing is noticed immediately. Because some issues are dependent on direction, e.g. setting up TCP connections, measuring from where the customer is using the service is necessary
- vProbes at Ficolo's shared service virtualization platform. Services provided from shared platforms include DNS, SMTP, Mail Exchange, NTP, Syslog as well as Portal (with monitoring, configuration database and rack documentation)
- Ficolo's internal service platform. This provides internally used services such as ERP and measuring shows visibility into delay from an internal IT perspective.

### CreaNODE 500 Mini probes at DC edge and enterprises

- At customer sites or Cloud Edge providing microsecond-precise measurements end-to-end and optional active measurements towards remote equipment (on L2 or L3) and SNMP data collection at the customer site (a unique collection topology)
- At the DC Edge, providing a measurement endpoint for the cloud production platform or cloud access for a segmented performance view

### CreaNODE EV3000 appliance at DC

- Used for management and reporting
- REST Export API is used to provide performance and SLA data to Ficolo customer portal

## Monitoring at Operator Neutral Colocation Data Center: Case Ficolo

### Measurement technologies and KPIs:

- ▶ Continuous active monitoring:
- ▶ Creanord NetPrecision, TWAMP, Y.1731 L2 loopback
- ▶ One-way and two-way delay
- ▶ One-way and two-way delay variation
- ▶ Packet loss/Frame loss
- ▶ Availability

### eXtended SNMP Probe-based monitoring:

- ▶ Distributed bandwidth utilization with high-frequency polling
- ▶ SNMP health monitoring from routers, switches

### Throughput monitoring & Troubleshooting:

- ▶ Service Activation Testing, Y.1564 (L2/L3)
- ▶ TrueTCP RFC 6349 with millions of TCP connections
- ▶ SNMP traps and emails to administrators triggered by performance events

Data centers are increasingly dependent on systems outside the DC that need infrastructure support, on the edge of the DC as well as in between data centers. This type of Critical Infrastructure is where a significant portion of innovation and value-add can be done. Connectivity is a vital part of any cloud service and there is a lot of room for differentiating services in this area, for instance with performance or SLA reporting, automation with NFV/SDN as well as packaging compute and connectivity.

Visibility into all segments of the Cloud provides understanding of how well overall service is functioning. Showing for instance access performance lets the customer immediately see how the operator-provided part of the service is doing. This increases customer satisfaction by isolating issues and pinpointing to the appropriate part of the service. Additionally, it helps to mitigate risk as issues can be found proactively and problems can be resolved fast.



### Ficolo

#### Cloud Platform & Colocation provider

- > 8500 m<sup>2</sup> (90 000 ft<sup>2</sup>) data center
- > Customers in 10+ countries
- > One of the fastest growing companies in Finland

#### Services

- > Cloud Delivery Platform, Security & Services
- > Colocation Data Center services
- > Reselling Carrier Cloud Access (L2/L3)

#### Differentiators

- > Flexibility and Service Performance Visibility
- > Service Differentiation with Connectivity
- > Energy and low cost location

### Network Performance Monitoring

#### Creanord made visibility a competitive advantage

- > Measurements to edge and end-to-end give extended visibility
- > Faster troubleshooting and better tools for analysis
- > Ability to support customer troubleshooting of third party network and equipment
- > Showing connectivity in Portal for differentiation
- > Platform to develop new services including connectivity with reporting and automation
- > Increased customer satisfaction and retention
- > Future-proof solution with NFV
- > Improved Cloud solution packaging

### Future Options

- > From pure performance to SLA reporting
- > With an NFV capable vCPE, vProbes can be used in enterprise monitoring
- > Automated Turn-Up testing with SDN-style REST interfaces
- > Enhanced and optimized cloud monitoring for intra-DC services