

360TM Service Assurance
Monitor and Alert



REAL-TIME APPLICATION MONITORING

BACKGROUND

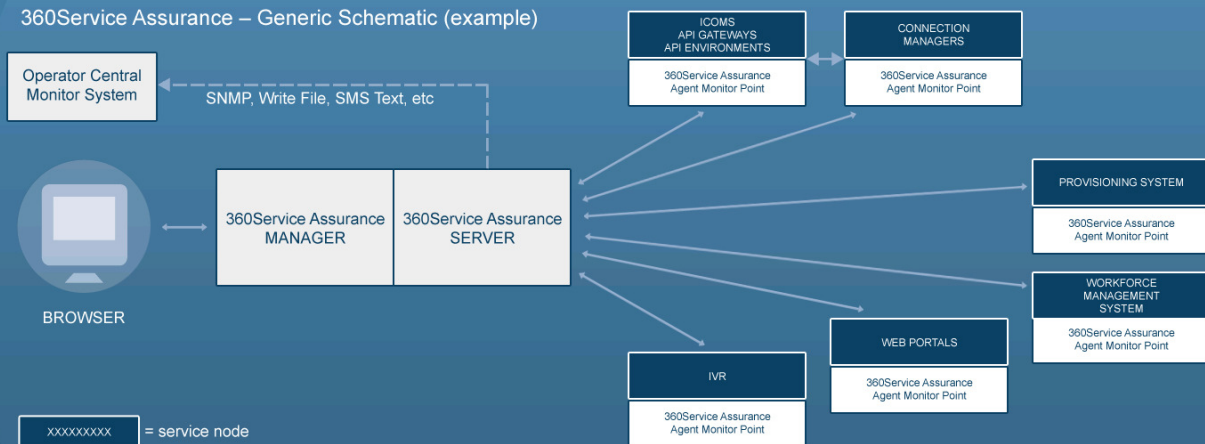
As market demands drive increased complexity and sophistication in service offerings, users of the Convergys ICOMS[†] billing and customer care application are making increasing use of the interface tool supplied that allows access and control of subscriber data and functions – known as API Gateway. As a consequence it is becoming an imperative that this business critical external interface is monitored 24x7 and as equally well managed as the day-to-day running of many of the BSS/OSS operations which are highly dependant upon it.

The continuous manual monitoring of API Gateway is impractical long term, and can lead to significant operational overheads. By their very nature, any shortfalls in identifying service impacting issues and prompt, accurately targeted remedial action, will result in a deterioration in overall customer experience.

Zentive is expert at delivering enabling technology to the cable and satellite industries through its 360 suite of integration products and is specialist at assuring the health of inter-system communications. The product described here, part of the 360Service Assurance family, monitors the wellbeing of one of the most critical ICOMS interfaces.

However, the story does not end there for 360Service Assurance. The flexible and modern architecture allows the application to deploy its Agent Monitor Points on virtually any service node within the BSS/OSS space and report conditions back to the 360Service Assurance Server/Manager. In turn, the Server/Manager presents this information via a browser-based GUI or, if required, can act as an aggregator passing on consolidated monitoring data to a pre-existing and centralised Operator monitoring suite of choice.

360Service Assurance – Generic Schematic (example)



PRODUCT INFORMATION

360Service Assurance is a tool that monitors the condition of all Connection Managers, API Gateways and API Environments (known generically as service nodes) across all instances of ICOMS within an operator's BSS/OSS space. For deep-dive analytics the application is also able to report at an individual API Macro messages level and this proves invaluable as the demands on the use of the API Gateway intensify.

HIGH LEVEL SUMMARY

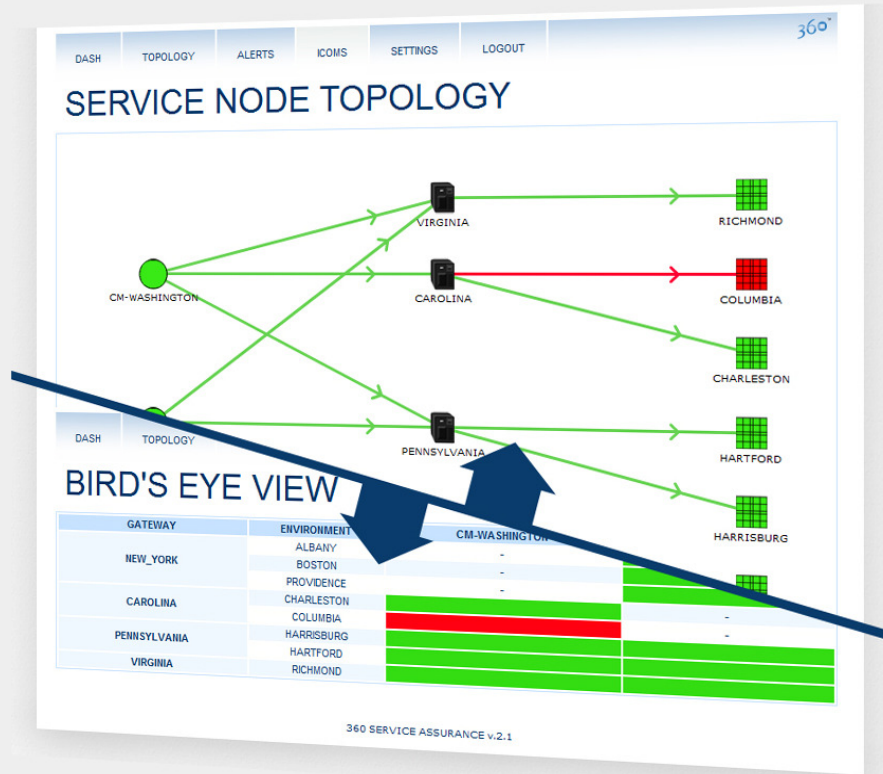
- Nodes that are monitored include all Connection Manager, API Gateway and API Environment occurrences in the ICOMS network.
- Agent Monitor Point Listener accesses node log files and reports selected data back to the centralised 360Service Assurance Server for performance analysis.
- Agent Monitor Point Injector pro-actively submits test messages in order to acquire availability and performance data for reporting back to the 360Service Assurance Server/Manager for analysis.
- Outages alerted upon and presented in a graphical browser-based format.
- API performance presented in a graphical browser-based format.
- ICOMS normal operational response times are not impacted by the use of 360Service Assurance.
- Tune the monitoring frequency to suit operational needs.
- Browser based Manager provides configuration, control and data analysis – real time and historical.
- Multiple alerting mechanisms to fit in with an operator's current infrastructure.
- Extensible to monitor any node (system, application, service) in the B/OSS environment.

NODE OUTAGES

Connection Manager, API Gateway, API Environment and their corresponding interconnections are monitored for a break in communication and the conditions under which these are alerted is configurable by the operator.

A browser based Bird's Eye View when used in conjunction with a Service Node Topology View furnishes a highly visually intuitive alert and most-likely cause mechanism.

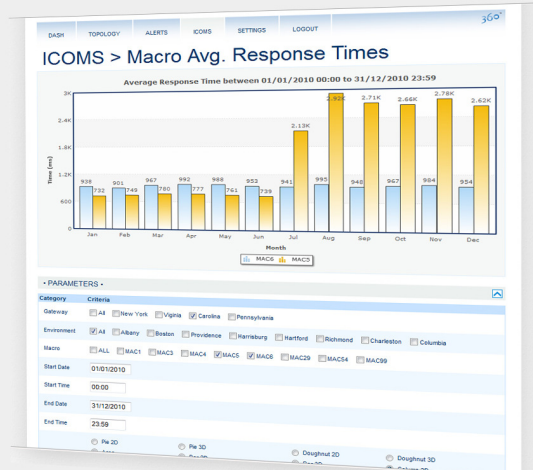
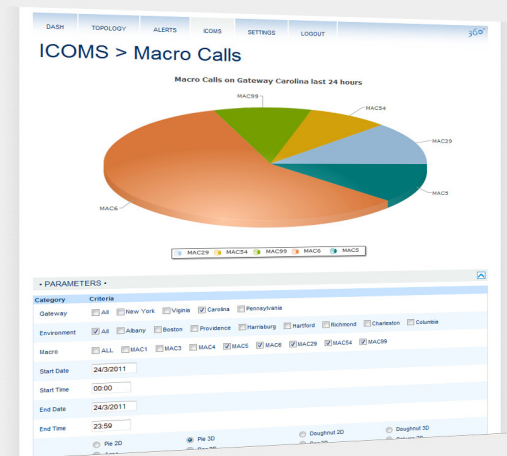
Supplementing this are electronic alerting mechanisms with the most popular supported by 360Service Assurance – SNMP, email, SMS text to Mobile, write-to-a-file.



OPERATIONAL PERFORMANCE

The monitoring of breaks in communication causing outages between systems is only one aspect of concern to an Operations department. Of equal importance is any deterioration in the performance of the nodes that constitute the API Gateway interface and this can take on many forms:

- No break in communications but an unacceptably long response time even for light message request traffic.
- High message request traffic loading causing bottlenecks – these might also be cyclical by time of day, week or because of an ad hoc event.
- Long term degradation of response times due to system capacity thresholds being unknowingly breached.



Performance data metrics available by API Gateway and by API Environment are:

- API Macro Calls – captures the volume of API message calls on an all or individual named API message basis over a configurable time period.
- API Macro Average Response Times – captures the average response time by individual API message name over a configurable time period.
- API Macro Processing Times – captures the ICOMS IBM iSeries CPU usage, SQL and internal program calls on all or individually named API message basis over a configurable time period. This feature is of particular use during pre-production testing.

Data presentation is selectable using a powerful and flexible graphing tool.

360Service Assurance SERVER/MANAGER

Centralised orchestration of monitored data, alerting and browser based graphical presentation is of key importance in the architecture of the solution.

Dashboard provides a 'snap-shot' of the most important reported data – outage alerts and their status and API message performance. The alerts feature is enhanced by the use of a colour coded red/green traffic light-type representation. 'Deep-dive' from this screen to obtain more detail.

Outage details are represented in the Bird's Eye View and the Service Node Topology View screens with the former being most likely used as a 'rapid response' display board in an Operations function.

Reports are provided in user-definable graphical form and flexible data filtering is provided for both the Outage and Performance functions.

In-house and pre-existing central monitoring systems can receive alert and performance data from 360Service Assurance Manager.

Configurable user profiles allow levels of authority to be defined for access to specific 360Service Assurance functions.

COMMERCIAL VALUE-ADD

360Service Assurance provides the capability to have a comprehensive and holistic insight in to the operation of critical systems in the BSS/OSS stable.

- Management visibility to help monetise the impact of system outages and performance degradation:
 - o Faster time to recover.
 - o Reduced call centre traffic particularly with business critical subscriber facing applications such as web portals and IVR.
- Increased end-user satisfaction for subscribers and internal staff.
- Assure the quality and integrity of systems upgrades and changes.

TECHNICAL & OPERATIONAL VALUE-ADD

A light-touch and low-impact application that is designed to integrate with any pre-existing Operations Department central monitoring system.

- 24x7 probing with the frequency set by the criticality of the API Gateway interface.
- Early alerting of a break in communications.
- System resource planning through pro-active performance monitoring with the capability to:
 - o Spot long term degradation of response times.
 - o Spot cyclical degradation of response times by day, week or ad hoc frequency.

PRODUCT ROAD MAP (Major Enhancements)

Electronic alert mechanism extended to Performance data with ability to configure limits.

API Macro business function identification as defined by its inline components e.g. the MAC6 order entry message is defined by its Macro Inlines as either Install, Upgrade, Disconnect, Truck Roll etc.

Detailed Health Check of API Macros using real time alerting based on Response Code received.

Agent Monitor Point Listener accesses node log files and reports historical error data back to the 360Service Assurance Manager for performance analysis.

API Environment real-time statistics showing number of Engines started, those that are free and the number of requests on the queue waiting to be processed (by the Engines).

Network Connection latency using local loop-back facility provided by API Gateway.

Auto Discover all Connection Manager and API Gateway components in the ICOMS network and include them in its portfolio to monitor.

Tune API Gateway 'on-the-fly' as system demands change.

Compliance of API Macro message structure to documented 'norm'. Particularly applicable during pre-production testing after upgrades or changes.

CONTACT:

Leon Clements | Product Manager | 360Service Assurance

Zentive Ltd
25 Barnes Wallis Road
Segensworth East
Fareham
PO15 5TT
United Kingdom

T: +44 (0) 1489 569440

W: www.zentive.com/platforms/

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