

Service Assurance with outsourced Network Management

Case Study



The Challenge

The service-provider in this case study wished to outsource the management of their Radio and Core networks as part of a strategic OpEx reduction strategy. In addition to this outsourcing, many other managed services were accommodated by other suppliers, vendors or partners. This new operating model required multiple new information flows between network (element) management systems and service quality management and assurance systems.

A key data flow required from each (outsourced) supplier was the notification of network faults (via alarms) together with network configuration change data. These feeds enabled the service-provider to deploy an End-to-End Service Assurance (SA) solution. The service-provider was able to limit their operational concerns to only the service affecting faults and then prioritise these in terms of likely service and revenue impacts.

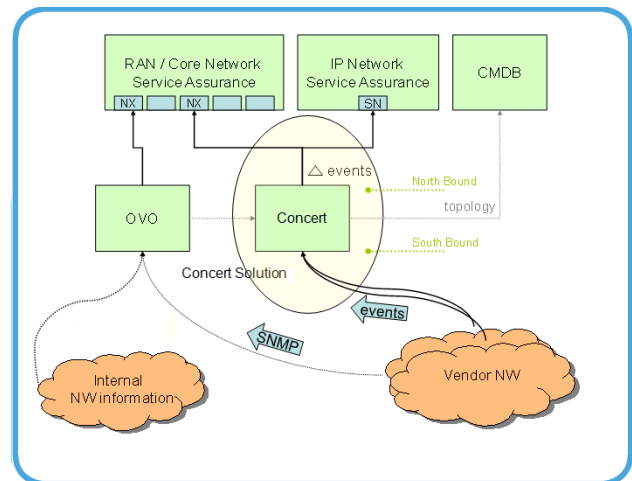
Main Goals for Alarm Mediation

- To find a cost effective solution which was capable of handling service affecting events from vendors via a simple, reliable, standards-based interface
- The ability to re-use the solution for multiple additional vendor integrations
- Clear requirements towards the vendor to provide service affecting events via a secure common method with non-repudiation of alarms sent
- A single common data gateway towards Service Assurance for service affecting information from vendors, which cannot be handled via the existing Fault Management (FM) solution
- Filter alarms towards Service Assurance systems, allowing for different subsets of information to be sent in a controlled manner

The Solution - Dataduct Concert

Dataduct Concert was deployed at the operator's site and is able to receive events, e.g. network alarms, from any network equipment type. It is also possible to feed events from internal systems, which cannot be handled via the existing FM solution.

The southbound interface was required to support two input principles which could be provided via multiple protocols such as sftp or https. The format of the events was X.733-based.



Two interchangeable input modes were supported:

1. Streaming Mode

This input handles continuous single raise and clear events in a predefined format. One stream is defined per input domain. Each vendor can send information via multiple domains.

2. Snapshot Mode

A complete list of outstanding events is periodically collected per domain via this input.

All data flows from southbound systems were independently manageable and archived internally according to required data policies. A vendor domain could be partitioned into multiple sub-domains according to technology or geographical region.

The northbound interface regularly synchronized the SA solution using a delta-feed of the domain data from the southbound sources. Synchronization functionality was also provided in addition to the delta feed. During resynchronisation the complete active event list per domain was passed to SA.

Application Description

The Concert Mediation System consists of 3 parts:

1. The Concert Mediation Server
2. A set of hot-swappable mediation components supporting various solutions (i.e. Service affecting Alarm Handling)
3. A lightweight 3rd party application support platform

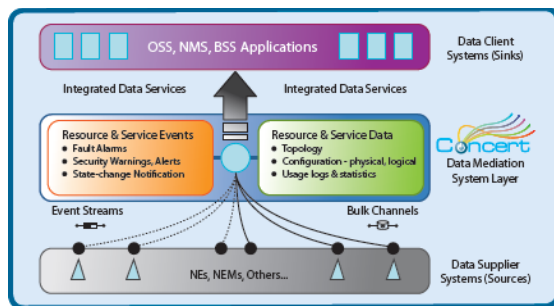
"Software vendors talk about five 9s (99.999%) availability but talk is cheap. Dataduct's Concert has been operational 100% over the past 3 years"

Operations Team Manager

Application Configuration

In order to adapt to an ever-changing systems environment the Concert Mediation System is designed to be highly configurable. The configuration capabilities can be categorized according to,

- Interface configuration – protocols, hosts, URIs, filter criteria
- Data transformation configuration – filtering, aggregation, cleansing, model mapping
- Deployment configuration – processes, threads, distribution, replication
- Data persistence options/configuration – RDBMS, Directory Server, File System, schema definition
- Behavioural/performance configuration – real time, high throughput, transactional, changed data capture



A central administration console is provided for the graphical monitoring and management of all data mediation solutions on the platform. Warnings and alarms are routed to system managers.

Further integrations can be added seamlessly without any modification to the underlying platform. In addition, the OSS data extracted is available to all other NMS applications from the internal data hub at a fraction of the cost of doing a traditional point-to-point integration. This flexibility and economy of re-use is why the industry is moving away from custom point-to-point solutions and moving towards data hub and product-based architectures.

Event Filtering

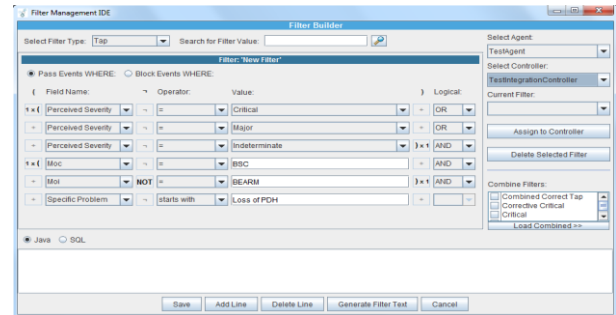
Concert provides mechanisms to filter event data before it is delivered to a target system, or as it is received from a source system. This capability was essential for this solution to ensure each SA system processed only those events in which it was interested. All events processed by Concert can be filtered according to a set of pre-defined filtering conditions which can be defined by a user of the Concert Client Application.

The Event Filtering features helps to:

- Reduce the number of events being sent to target systems, while retaining the most important and relevant events.

- Protect against storms of events
- Make corrections to event fields of a subset of filtered events.
- Specify exactly what type information is sent to different target systems.
- Preview the outcome of a filter on an active event list using the Concert Client Application.

Concert provides a 'Filter Management IDE' to facilitate the management of event filters. This provides the user with a way to create custom, powerful and complex event Filters. All event filters can be easily deployed within the same IDE to any source or target system.



The effect of all Concert Event filters can be previewed on the active event list using the Concert Client Application. This is an easy way for the user to determine the correct behaviour of an Event Filter before it is deployed.

The Benefits

- Quality data feeds - SA application users had the necessary high confidence in both the availability and quality of data being provided
 - Ability to manage and monitor data feeds with high precision
 - Ability to audit and log data elements and events in line with relevant SLAs
- An agile, scalable alarm mediation layer
 - Ability to add new network equipment in a plug and play (future-proof) fashion
- Yielded a strategic separation of network systems environment from the service systems environment with a highly flexible standards-based mediation layer
- Met the strategic objectives of both the outsourcing programme and integration architecture in terms of deploying proven and trusted product rather than Bespoke stovepipe solutions with high TCOS

