

Integrated Network Management

Case Study



The Challenge- Correlate Alarms with Configuration Change

Concert was already in use in the customer's network management environment reconciling network topology and configuration data. The customer had a need to improve the decision support functionality of their alarm monitoring and handling system. The existing alarm correlation capabilities only used the data available in the alarm feed. The customer believed that if alarms could be correlated against network change data, the alarm resolution time would be significantly reduced. Many QoS alarms, especially in Radio networks, are caused by changes in configuration parameters. If the most recent configuration changes prior to an alarm being raised could be automatically identified, the time to resolution and human effort involved would be substantially reduced.

The Solution- Concert Network Management Suite

The Concert Solution used 3 components from the Concert Network Management Suite:

- Concert Configuration Management Database
- Concert Alarm Viewer
- Concert Topology Browser

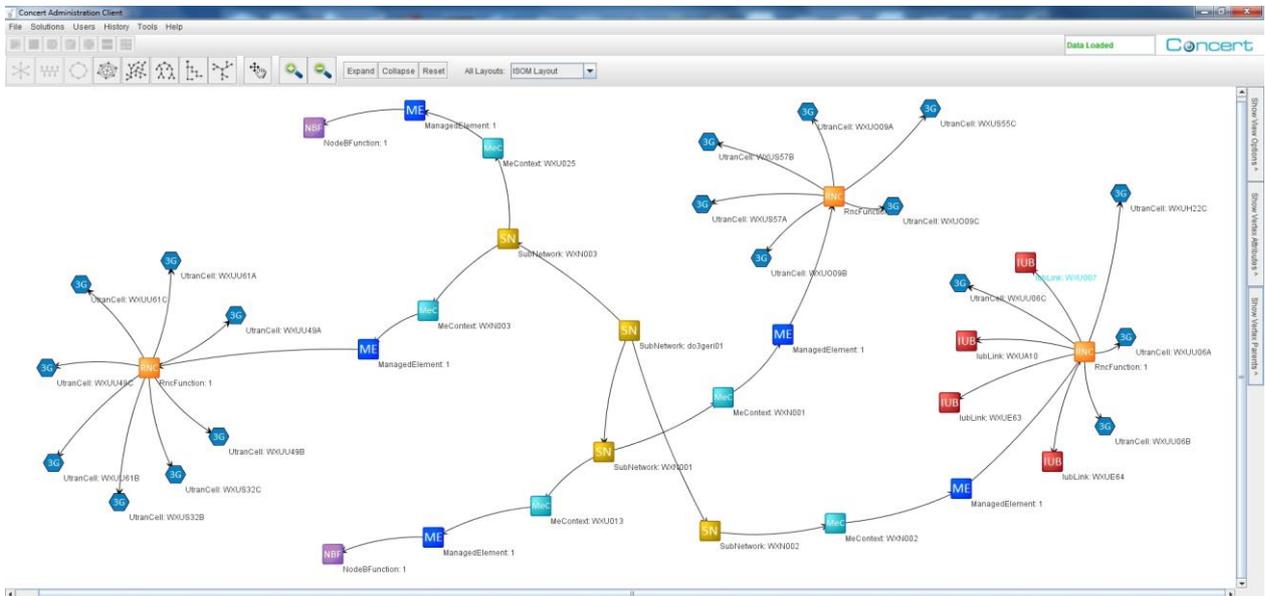
Concert provides the ability to monitor an entire network by recording change of state information for each attribute of a Network Element (NE) in its Configuration Management DataBase (CMDB). Topology and Configuration files are processed in a manner to recognize the appearance of new NEs, the disappearance of redundant NEs and the changes to existing NE attributes.

This information was used in parallel with alarms displayed in the Concert Alarm Viewer. Raised alarms specify the Distinguished Name (DN) of a particular NE. The Viewer was used to display a list

The screenshot displays the Concert Administration Client interface. The top section shows a list of alarms with columns for ID, MOC, MOI, Perceived Severity, Time Stamp, Specific Problem, Additional Text, Service Id, Service Id Text, Clearance, Correlation Id, and Vendor Refe. Below this, the Configuration Viewer is open, showing a tree view of network elements and their attributes. The Value History tab is also visible, showing a table of attribute changes over time.

Id	Moc	Moi	Perceived Severity	Time Stamp	Specific Problem	Additional Text	Service Id	Service Id Text	Clearance	Correlation Id	Vendor Refe
29927678	RRROOT	SubNetworks	Critical	2010-02-24T12:53:19	Static Threshold	Static Threshold, Source:OSSRC_FM	29927678	VOICE	false		QualityOfServ
29927679	RRROOT	SubNetworks	Critical	2010-02-24T12:53:19	Static Threshold	Static Threshold, Source:OSSRC_FM	29927679	VOICE	false		QualityOfServ
29863038	RRROOT	SubNetworks	Major	2010-02-24T12:53:19	Number of occurrences within	Number of occurrences within a period, Source:OSSRC_FM	29863038	VOICE	false		QualityOfServ
29827689	RRROOT	SubNetworks	Critical	2010-02-24T12:53:19	Static Threshold	Static Threshold, Source:OSSRC_FM	29827689	VOICE	false		QualityOfServ
29373348	RRROOT	SubNetworks	Critical	2010-02-19T23:47:46	Number of occurrences within	Number of occurrences within a period, Source:OSSRC_FM	29373348	VOICE	false		QualityOfServ
29629227	RRROOT	SubNetworks	Critical	2010-02-23T23:47:32	Number of occurrences within	Number of occurrences within a period, Source:OSSRC_FM	29629227	VOICE	false		QualityOfServ
29373351	RRROOT	SubNetworks	Critical	2010-02-19T23:47:46	Number of occurrences within	Number of occurrences within a period, Source:OSSRC_FM	29373351	VOICE	false		QualityOfServ
29373354	RRROOT	SubNetworks	Critical	2010-02-19T23:47:46	Number of occurrences within	Number of occurrences within a period, Source:OSSRC_FM	29373354	VOICE	false		QualityOfServ
29373353	RRROOT	SubNetworks	Critical	2010-02-19T23:47:46	Number of occurrences within	Number of occurrences within a period, Source:OSSRC_FM	29373353	VOICE	false		QualityOfServ
29757789	RRROOT	SubNetworks	Major	2010-02-23T02:11:01	UltranCell_NbapMessageFailure	UltranCell_NbapMessageFailure, Source:OSSRC_FM	29757789	VOICE	false		Communicatio
29757791	RRROOT	SubNetworks	Major	2010-02-23T02:11:01	UltranCell_NbapMessageFailure	UltranCell_NbapMessageFailure, Source:OSSRC_FM	29757791	VOICE	false		Communicatio
29757782	RRROOT	SubNetworks	Major	2010-02-23T02:11:01	UltranCell_NbapMessageFailure	UltranCell_NbapMessageFailure, Source:OSSRC_FM	29757782	VOICE	false		Communicatio
29757783	RRROOT	SubNetworks	Major	2010-02-23T02:11:01	UltranCell_NbapMessageFailure	UltranCell_NbapMessageFailure, Source:OSSRC_FM	29757783	VOICE	false		Communicatio
29757788	RRROOT	SubNetworks	Major	2010-02-23T02:11:01	UltranCell_NbapMessageFailure	UltranCell_NbapMessageFailure, Source:OSSRC_FM	29757788	VOICE	false		Communicatio
29757789	RRROOT	SubNetworks	Major	2010-02-23T02:11:01	UltranCell_NbapMessageFailure	UltranCell_NbapMessageFailure, Source:OSSRC_FM	29757789	VOICE	false		Communicatio
29754857	RRROOT	SubNetworks	Major	2010-02-23T01:14:54	UltranCell_NbapMessageFailure	UltranCell_NbapMessageFailure, Source:OSSRC_FM	29754857	VOICE	false		Communicatio
29690948	RRROOT	SubNetworks	Major	2010-02-22T14:31:19	UltranCell_NbapMessageFailure	UltranCell_NbapMessageFailure, Source:OSSRC_FM	29690948	VOICE	false		Communicatio
29690949	RRROOT	SubNetworks	Major	2010-02-22T14:31:19	UltranCell_NbapMessageFailure	UltranCell_NbapMessageFailure, Source:OSSRC_FM	29690949	VOICE	false		Communicatio
29615888	RRROOT	SubNetworks	Critical	2010-02-23T23:47:32	Number of occurrences within	Number of occurrences within a period, Source:OSSRC_FM	29615888	VOICE	false		QualityOfServ
29495203	RRROOT	SubNetworks	Major	2010-02-23T23:47:34	Number of occurrences within	Number of occurrences within a period, Source:OSSRC_FM	29495203	VOICE	false		QualityOfServ
29927728	RRROOT	SubNetworks	Critical	2010-02-24T12:53:20	Static Threshold	Static Threshold, Source:OSSRC_FM	29927728	VOICE	false		QualityOfServ
29927732	RRROOT	SubNetworks	Critical	2010-02-24T12:53:20	Static Threshold	Static Threshold, Source:OSSRC_FM	29927732	VOICE	false		QualityOfServ
29927718	RRROOT	SubNetworks	Critical	2010-02-24T12:53:19	Static Threshold	Static Threshold, Source:OSSRC_FM	29927718	VOICE	false		QualityOfServ
29927719	RRROOT	SubNetworks	Critical	2010-02-24T12:53:19	Static Threshold	Static Threshold, Source:OSSRC_FM	29927719	VOICE	false		QualityOfServ
29827708	RRROOT	SubNetworks	Critical	2010-02-24T12:53:19	Static Threshold	Static Threshold, Source:OSSRC_FM	29827708	VOICE	false		QualityOfServ

Attribute Name	Value	Timestamp	Name	Current Value	Previous Value
bchPower	-31	2010-02-16 01:58:02.0	maximumTransmissionPower	438	400
cid	52657	2010-02-14 01:58:02.0	secondarySchPower	-35	<unset>
lac	3019	2010-02-14 01:58:02.0	maximumTransmissionPower	400	<unset>
localCellId	52657	2010-02-14 01:58:02.0	sac	52657	<unset>
maximumTransmissionPower	438	2010-02-14 01:58:02.0	uarfcnUl	9812	<unset>
primaryCpichPower	330	2010-02-14 01:58:02.0	bchPower	-31	<unset>
primarySchPower	-18	2010-02-14 01:58:02.0	primaryCpichPower	330	<unset>
primaryScramblingCode	422	2010-02-14 01:58:02.0	userLabel	DN704_Adelade_Square_P3	<unset>
rac	1	2010-02-14 01:58:02.0	lac	3019	<unset>
sac	52657	2010-02-14 01:58:02.0	primarySchPower	-18	<unset>
secondarySchPower	-35	2010-02-14 01:58:02.0	uarfcnUl	10762	<unset>
uarfcnUl	10762	2010-02-14 01:58:02.0	localCellId	52657	<unset>
uarfcnUl	9812	2010-02-14 01:58:02.0	SubNetworks:ONRM_ROOT_MO_R_Su	<unset>	<unset>



of all NE attributes and a complete history of attribute value changes for the selected NE. Business logic rules were defined to refine the set of changes displayed and to further aid the operators in the decision making process.

The portion of the Concert Alarm Viewer which displays the hierarchy of NEs, NE Attributes and NE Value History was used both as a standalone application, and was integrated seamlessly into the customer's existing service assurance application. It can be integrated with most major fault management and service assurance applications. Its features include:

- NE Value History information integrated with Alarm Viewer
- Dynamic Hierarchy of all NEs
- Filtering of alarm data to pinpoint results for specific NEs
- Sorting of all alarm data according to timestamp to see most recent NE related alarms
- Integration of NE Value History with fault management applications

The Concert Topology Browser can also be used to view relationships between related NEs by means of a Network Topology Graph. This provides a graphical overview of a set of NEs and the types of relationships that connect them.

Each NE graphical node can be selected to be shown individually with its related NEs. This allows the user to navigate down through the NE hierarchy while keeping the most relevant NE in view. The user can also choose the number of levels down the hierarchy to be displayed at any time. Other capabilities are:

- Select the hierarchy depth to view NEs
- Choose from a list of graphical topology layouts
- Expand / Collapse individual NEs
- View attributes for any NE when selected
- A suite of graphical options available for NEs, connectors & labels

Benefits

- Average of 3 times faster fault resolution time across all alarm types
- Up to 12 times faster resolution for QoS alarms.
- Significant reduction in the number of trouble tickets raised. Many faults can be resolved by rolling back most recent configuration change without the need to raise a trouble ticket.

