# Prelert RMDS Case Study

## Automating incident cause analysis for Reuter's Market Data System

### Common causes of RMDS Congestion

- Machines out of CPU
- UDP buffers not big enough
- Duplicate node IDs
- NICs on machines and ports on switches mismatched for duplex/speed
- An old , slow, forgotten box with RRCP still running
- NIC, cabling or switch hardware problems
- Packet reordering problems caused by OS or switches

*"Note that this process is tedious, challenging, and may take weeks."*

Source: RMDS Tuning Guide

## Market Data System Congestion

A top 5 global investment bank was suffering from chronic Reuter's Market Data System (RMDS) performance issues. For two months, stale pricing data made opening bell at the NYSE a painful time for their traders.

To make matters worse, this was happening in the middle of a troubled market. The bank was concerned that market volatility combined with the competitive disadvantage of slow market data was putting them at significant risk.

As is the case in most enterprises when a business impacting, service affecting incident arises, a 'war room' was convened headed by the IT organization's top RMDS experts. By examining the data at hand, they were able to quickly determine that trader complaints of stale pricing information during opening trading hours correlated with RRCP congestion messages.

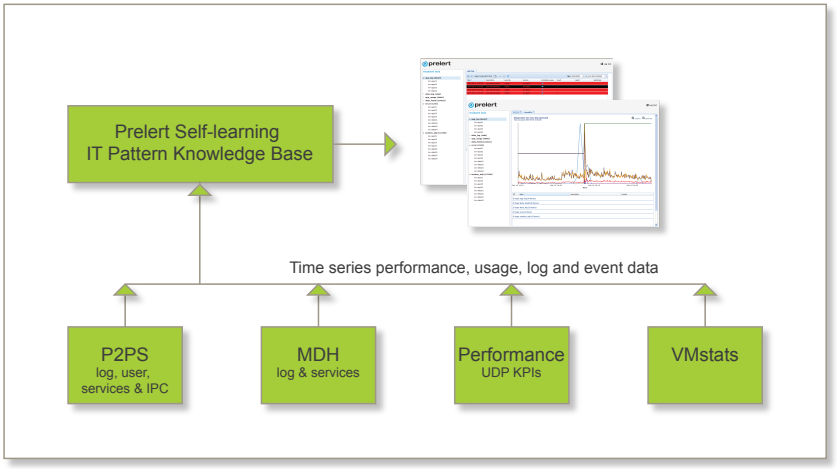
RRCP is the protocol that sits on top of UDP and passes RMDS updates, images and inserts between system components and clients.

Armed with RMDS utilities and a 166 page RMDS Tuning Guide the team spent the next few weeks tuning the performance of the underlying infrastructure to no avail. Congestion problems persisted.

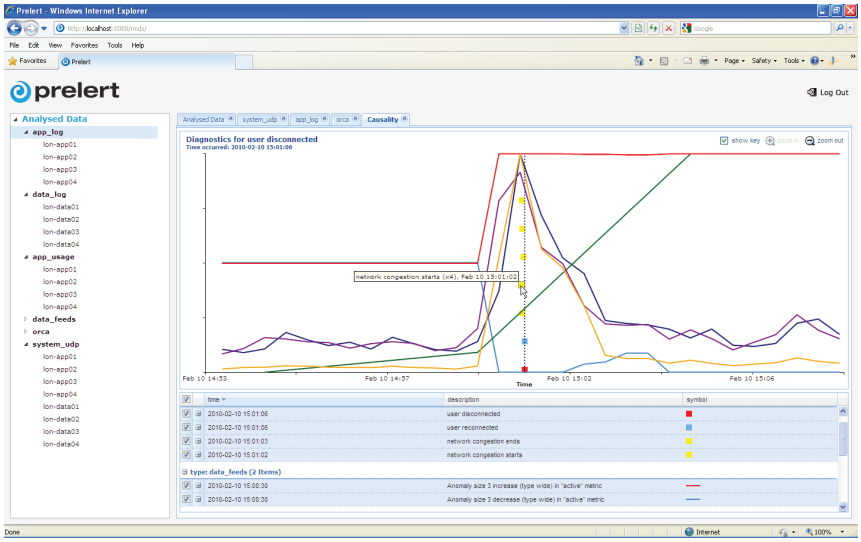
The team, now expanded to 3 experts, faced the daunting challenge of manually examining a daily load of 15 Gb of P2PS logs, users, services and IPC data, MDH logs and services data, VMstats and UDP data. With literally millions of data points in front of them, it was impossible to prove their hunch that a network issue was causing the system congestion.

Two months into the process, with 6 man months invested and still facing daily performance issues they were unable to determine a cause. The only option remaining was to recommend a $1 million upgrade of the RMDS infrastructure.

*Before Prelert: 3 IT experts spend 2 months in a daily analysis of 15 Gb of P2PS, VMstats, UDP an d MDH logs and time series data*




*Prelert takes data feeds from existing management systems and automatically provides a time series narrative of the causal events behind service degradation issues*




*Prelert was quickly able to determine that a client had its channel cut and then recovered. While recovering it would cause a UDP spike that would cause network congestion and stale pricing on other clients.*

# The Prelert Solution

Prelert has a better idea. Our users feed us their output log files, event data and time series performance and usage data. Prelert's IT pattern analysis engine builds a holistic, knowledge base of how the components in their end-to-end system interoperate. They get instant access to a time based narrative of causal and related events.

Prelert was asked to conduct a Causal Analysis Validation (CAV) to see what its self-learning analytics could uncover. It was quickly determined that an RMDS server was intermittently terminating its connection with a specific client on a specific server. As the server recovered, the surge in traffic (showing up as a UDP spike) would cause congestion that affected the other clients. It was this congestion that lead to the slowdown in RMDS which resulted in stale pricing.

As was the case here, fail over related performance issues are very difficult problems to diagnose. By the time the user notices the delay the system has 'healed' and the data that would lead to the cause has been obscured.

Given more time and expert resources, the problem management team may have uncovered this causal sequence of events. Time and resources, however, are the very commodities that problem management teams don't have when mission critical services are affected.

Using advanced machine learning and pattern detection analytics, however, Prelert's Incident Cause Analysis solution was able to find the cause in minutes. As a result, the bank was able to save $1 million in unnecessary upgrades and return 2 full time engineers to critical projects while resolving a chronic performance problem that had plagued their traders for months.

## Contact us today to see what Prelert can do for you

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