

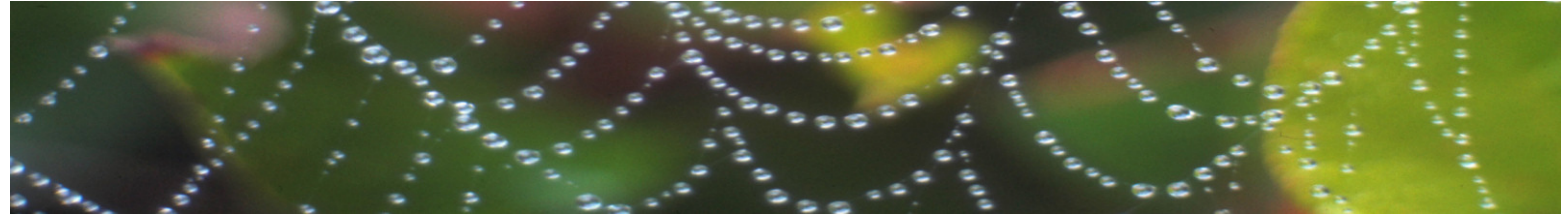
Technical brief: Operational impact analysis

Founded in 1979, IPL has a long history of successfully delivering excellent value consultancy and end-to-end software-intensive solutions to both the public and private sectors.

IPL's consultancy is renowned for its quality and value. Our consultants are talented and independent-minded individuals with extensive industry experience. We consistently exceed our clients' expectations through a combination of imaginative thinking, managerial and technical expertise and many years of systems engineering experience.

IPL's track record in end-to-end software solutions development is exceptional. Our proven development methodology allows us to cut through technical complexity, manage risk and completely focus on delivery. We consistently deliver reliable, efficient and accurate systems to a precise schedule.

IPL is an ISO9001:2000/TickIT registered company having a permanent workforce of 240, revenues of ca. £21M p.a. and 40,000 sq ft of secure office space in central Bath.



Smart management of network faults

Business need

A well-known UK public sector organization came to IPL. It operates a private data network of over 100,000 devices, distributed widely across the country. Like every data network, our client's network suffers occasional equipment failures, and like many other good network operators, our client had implemented fault monitoring systems to feed a central log of reported failures.

However, unlike most other networks, some (but not all) of the services supported by our client's network were important for public safety. Fixing any faults that might affect safety-related services was naturally our client's highest priority. So our client had a pressing need to know, quickly and reliably, which of its services each particular network fault might affect, and to know exactly what network element failure(s) was at the root of any fault reports.

Technical challenge

Our client's information needs were, perhaps surprisingly, not at all easy to meet. In common with most large networks:

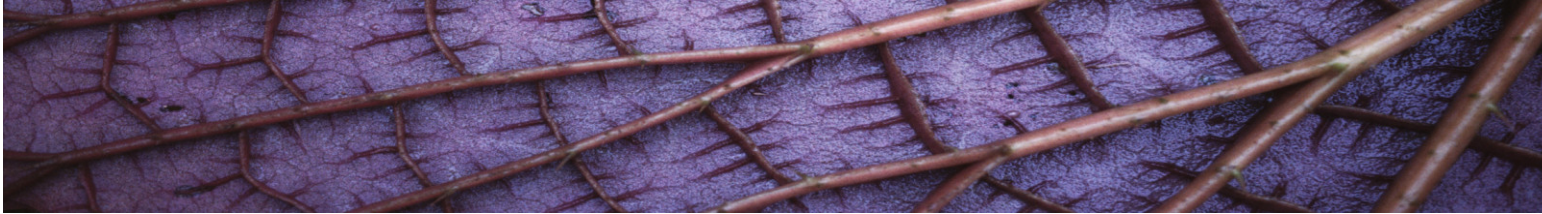
- When a network element failed, it would typically provoke many related network elements into raising one or more fault reports. So there would be no simple relationship between

fault reports and actual faults, and most of the fault reports received didn't even correctly identify the failed device.

- To deduce, from the storm of fault reports, what device had actually failed, required not only expert knowledge of the devices' failure modes, but an up-to-date understanding of the network topology. Because of the ongoing stream of network improvements and repairs, the network management team could never be sure that their latest network topology plans really represented what was out there in the network. So tracing the failed device was frustratingly unreliable.
- The network topology was large and quite complex, so even when our client's staff knew what device(s) had failed, it could take hours to work out which services the failure would affect. For the safety-related services, hours was too long.

Why IPL?

Our client came to IPL because of our long experience of large scale network and service management systems development. IPL has provided the fault management integration systems for a number of fixed and mobile public carrier networks, and for certain military networks. By using IPL to address its problem, our client was able to take advantage of IPL's many years of experience of best practice in solving very similar problems in the telecoms and defence arenas.



IPL's answer

The problem required a technology that could track the network configuration in real time, could hold expert knowledge about the likely behaviour of the network's components, and could use those to infer both the root cause and the service impact of a set of fault reports.

While a number of Operations Support System (OSS) platforms from the telecoms world claim to address those requirements, most of them fail to separate the general knowledge about component behaviours from the specifics of the network configuration. They produce systems which can analyze faults well to start with, but which get progressively (and rapidly) worse as the network topology evolves.

IPL's wide network of business partners led us to StateWise, an OSS platform which very effectively decouples behavioural rules from network topology. IPL integrated StateWise with supporting software packages and custom-made interface adaptors, to provide an outstandingly effective fault management system. Among its many features are:

- Root cause analysis based on dynamic topology model and expert system rules.
- Identifying the operational service impact of each fault.
- Assigning faults to engineers, and uploading fault details to their handheld computers.
- Absorbing network topology changes as they happen, and immediately recalculating the network's operational state.

Business outcome

IPL and its partners delivered the solution system on the expected day and to the expected cost. Since then, it has seen continuous operational service, handling many thousands of network fault reports, enabling our client's field force to do their job with a new precision and efficiency, and enabling the network operations team to ensure that any threats to the network's safety-related services are dealt with in good time.

Public safety is assured, and our client's network spending is used more efficiently. IPL continues to work with our client, in enhancing this solution and in other areas.

For this project, IPL used the product "StateWise", developed by IPL's partner Sidonis. Sidonis specializes in cutting-edge products for event correlation, root cause and service impact analysis. IPL is Sidonis's primary UK reseller.

StateWise is Sidonis's flagship correlation product, which is finding applications in several industry sectors, such as telecoms operators, transmission companies and large systems suppliers.

For more information about Sidonis, contact IPL as below.



Certificate Number FM 01589

Contact information

Services Sales
IPL Information Processing Limited
Eveleigh House
Grove Street
Bath
BA1 5LR

Tel: +44 (0) 1225 475000
Fax: +44 (0) 1225 444400
Email: sales@ipl.com

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