

OPTICAL NETWORKING: THE AUTOMATION ULTIMATUM?



In an increasingly fierce scramble to remain competitive, or indeed to actually stay in business long term, many optical network connectivity providers and service operators worldwide are investing heavily in network automation ideologies, solutions and systems, writes **John Williamson.**

Right now, automation is a hot topic for all varieties of network, but there may be a particularly compelling synergy between automation and optical networking. "Having a fibre optic network without automation is like bringing a Ferrari to a street race but forgetting to inflate the tyres – extraordinary performance capability,

but an inability to move forward quickly or even win the race," contends Geoff Burke, Chief Marketing Officer of the Broadband Forum (BBF).



GEOFF BURKE
CMO, BROADBAND FORUM

The spread of installed and developing optical network automation opportunities is quite wide. In this context, initiatives range from the use of self-tuning DWDM transceivers to the construction of the sort of ambitious Intent-Based Networking (IBN) model favoured by the like of Cisco Systems. Either way, the attractions of automation are manifold, and can be substantial.

AUTOMATION PAYBACKS

In a big picture view, the types of optical network automation benefits can be categorised, singly or in combination, as: improved efficiency; cost reduction; increased revenues; and optimised service and product provision and delivery.

Improved efficiency is a major draw. "This is achieved through the standardisation of procedures, fewer human errors and the re-use of automated processes," says Stephan

Neidlinger, VP, Global Business Development at ADVA Optical Networking.

"Automation will also deliver cost savings through execution time reduction, reduced labour cost and the freedom it offers to redeploy personnel on other revenue-generating tasks," adds Neidlinger.

In general, any positive impact on OpEx reduction from automation is to be especially welcomed. "The cost to operate a network is much higher than the cost to initially build a network," states Ben Baker, director Strategic Marketing at Juniper Networks. "Typically the ratio of OpEx to CapEx is around four-to-one."

Resource maximisation is another heading under which the positives of network automation can be addressed. "Automating a network enables you to do more faster and with fewer people," comments Rob Shore, SVP Marketing at Infinera. "With automation, for example, you don't have to rely on people to understand the most optimal path for traffic or calculate complex equations within the network, allowing operators to more efficiently use all resources at all the layers of the networks more efficiently."



ROB SHORE
SVP MARKETING, INFINERA

A further potential network automation deliverable relates to the achievement of higher revenues, resulting from faster time to market, more satisfied customers, and less churn.

Optical network automation also shapes moves towards the successful realisation of disaggregated networks and the

commercialisation of 5G and the IoT.

Network disaggregation is being driven by a desire to both increase operational flexibility and lower costs by circumventing vendor lock-in. There is consensus, though, that without automation of lifecycle management and network test processes and system operations, large scale disaggregation will be uninvitingly complex.

"Flexibility and agility requirements demand a move towards open and disaggregated network design practices, replacing monolithic integration," judges Neidlinger. "Automation and open control interfaces are a proven means to efficiently integrate technology domains, such as open optical transport and high-performance packet forwarding devices."

Again, managing the complexities inherent in running 5G and the IoT services mandates the introduction of automation.

Last, but by no means least, automation has a key role to play in improving the security of network operations. "Security absolutely is one of the priority areas for automation," says Baker. "Here the problem isn't having enough data, the problem is having too much data."



STEPHAN NEIDLINGER
VP, GLOBAL BUSINESS
DEVELOPMENT, ADVA

AUTOMATION'S VARIATIONS

However, the dividends of automation can play out differently in different parts of the network. "Network automation will naturally bring most value to network areas that need to be frequently configured and reconfigured," observes Neidlinger. "These network actions could be simplified using