


**SOLUTION BRIEF**

# System Automation

## Realizing the Self Sufficient Network

### Keep Your Network Up and Your Costs Down

When deploying or upgrading a network, much attention is paid to the upfront costs of the equipment and many times contracts are simply awarded to the vendor with the lowest price rather than considering the total cost of ownership (TCO) which includes both the capital cost of the equipment including software (CAPEX) as well as the operational costs incurred to operate and maintain it (OPEX). In fact, over the useful life of the network, a service provider will spend twice as much on OPEX as it does on CAPEX (see Figure 1).

Operating a telecommunications network involves a multitude of intricately connected processes and dependencies to deploy, commission, provision, monitor and troubleshoot the network and the services that run over it.

A failure within or between any of these processes can result in delays or errors in carrying out essential tasks such as provisioning a service. The fact that many of these processes are manual means it should be no surprise to find that the leading cause of network downtime is human error (see Figure 1).

**Facts & Figures:**

- OPEX will account for two-thirds of the total cost of ownership (TCO) over the life of your network
- 49% of all network outages are caused by human error
- This is as much as all other factors combined such as natural disasters, security breaches, equipment failures and power outages

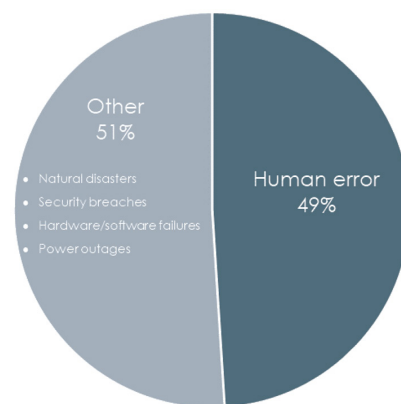


Figure 1 - Causes of network downtime  
 (Source: <https://www.carritech.com/news/cost-network-downtime-service-provider>)

### The Challenge

The challenge for you as a service provider is reducing network downtime as much as possible while also lowering operational costs. This means improving your processes while at the same time reducing the time and effort required to perform them. While these goals may seem to be at odds with one another, there is a way to address both at once.



## Impact

While you have little to no control over most downtime causes, you can all but eliminate the biggest single cause by automating many of the processes associated with the operation of your transport network.

By moving the complexity, time and effort associated with operation of the network into the management software itself, you can simplify, streamline and speed these processes while eliminating the problems caused by misconfiguration of services and data input errors (see Figure 2).

The impact on your network can be as much as a 50% reduction in service outages, reduced SLA penalties and improved customer satisfaction.

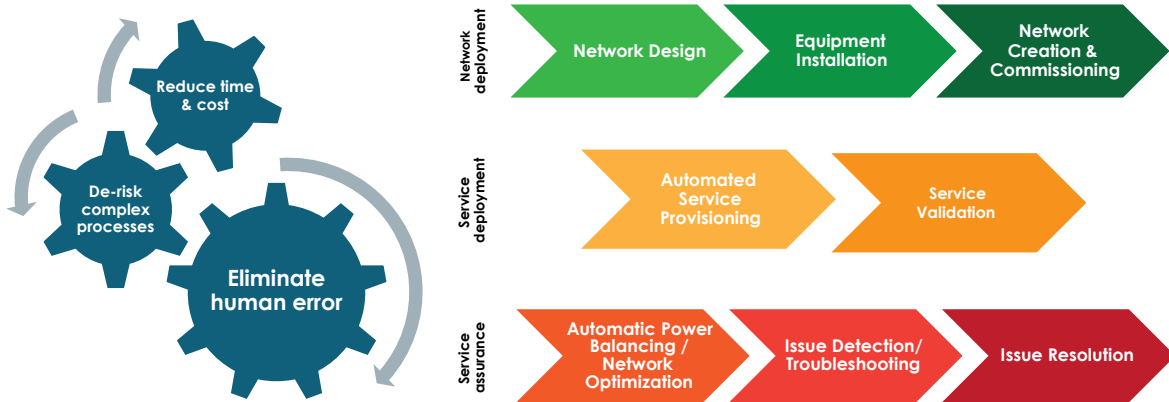


Figure 2 - Automating network functions

## The Ekinops Solution

Ekinops provides a complete set of hardware and software tools that enable end-to-end system automation. (see Figure 3)

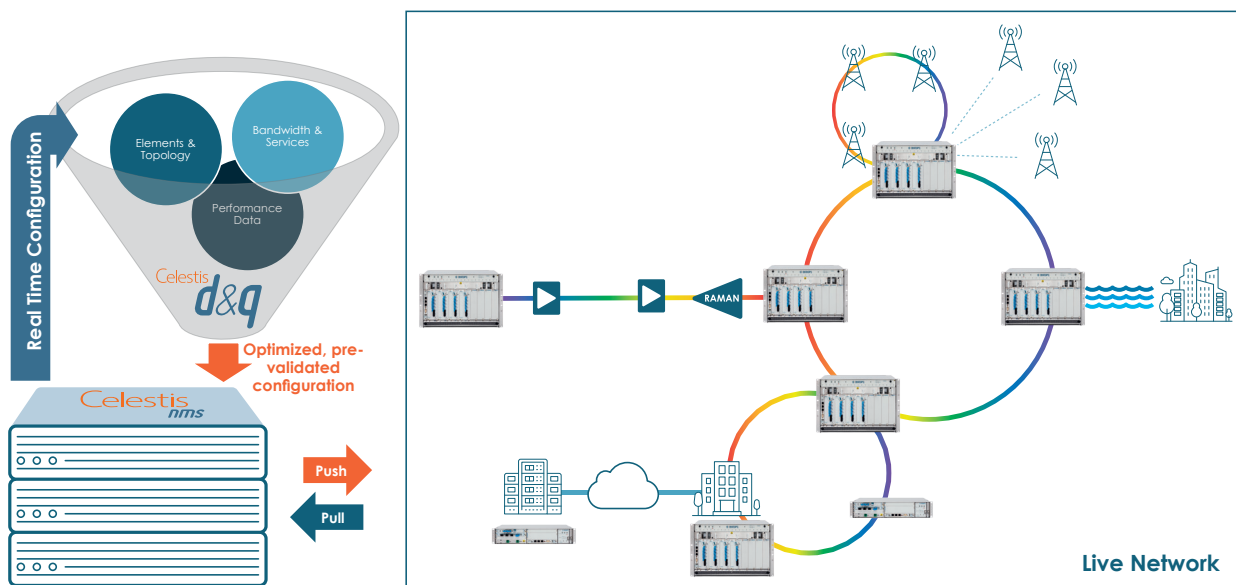


Figure 3 - Ekinops system automation process



At the core of the solution is Celestis NMS network management system, part of Ekinops Compose software portfolio for the Ekinops360 Dynamic Optical Transport portfolio. Integrated as a module inside Celestis NMS is the Celestis D&Q design tool that can extract as-deployed configuration and performance parameters from the live network and perform scenario analysis to determine the impact of any network changes such as adding or removing wavelengths and services.

Because it operates off-line, Celestis D&Q can perform iterative simulations to determine the optimal network settings without disturbing the live network. Once the optimal settings are found, they can then be imported back into the main Celestis NMS system and pushed out to the individual network nodes during the next maintenance window.

On the hardware side, Ekinops provides a complete line of ROADMs and amplifiers with configurable variable gain and transmit power settings that can be controlled remotely from the NOC. The amplifiers continuously monitor span loss and adjust their own settings to account for both rapid changes in power due to channel adds/ deletions or LOS events, as well as gradual power changes due to fiber aging.

Ekinops hardware solutions come in both pluggable modules that can be inserted in any C600HC or C200HC chassis, as well as in 1RU fixed configuration shelves. All solutions are fully interoperable regardless of form factor and can be mixed and matched depending on the space and power requirements of the node location (see Figure 4).

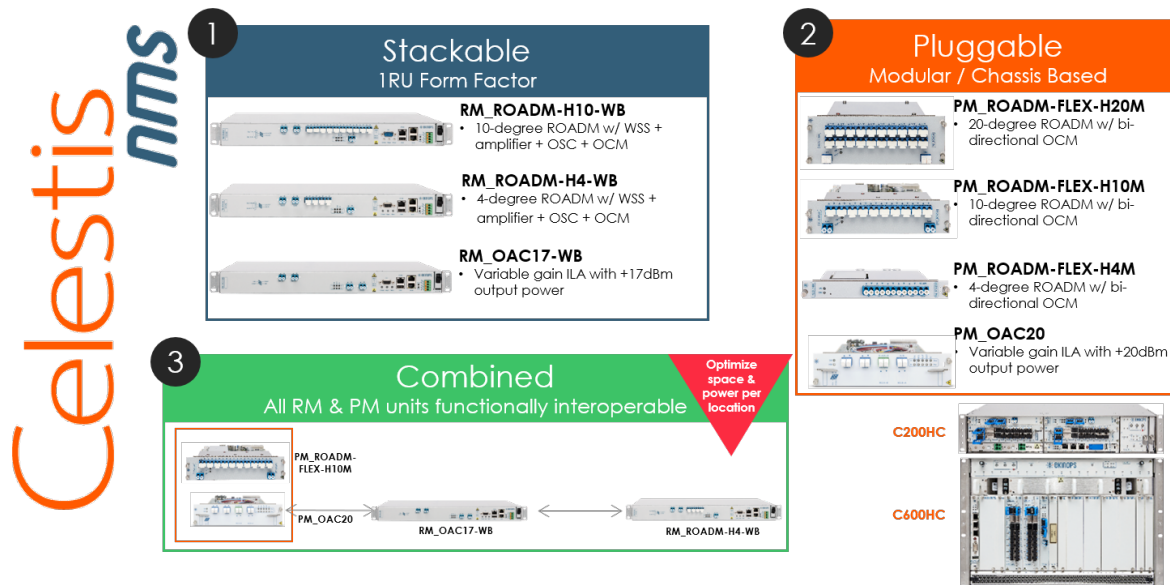


Figure 4 - Ekinops system automation hardware tools

## Features

- Auto Discovery
  - Topology Discovery
  - Inventory & Configuration Management
- Auto Commissioning
  - “Hands free” link turn-up & optimization
  - Integrated design tool
- Point-and-click Provisioning
  - GMPLS-based route computation
- Auto Power Balancing
  - Automatic adjustment & monitoring of WDM parameters
- Traffic Protection
  - 1+1 protection <50ms digital switch time



## Conclusion

Ekinops system automation tools help eliminate human error to significantly reduce network downtime and the operational cost of performing many complex and time consuming tasks.

They simplify and speed network, wavelength and service commissioning with the ability to optimize performance with pre-validated designs that can be created off-line so they don't disrupt existing traffic. This allows network planners to model multiple scenarios to ensure they achieve the most effective performance prior to implementation.

Once operational, GMPLS-based service restoration is able to handle LOS events and other service disruptions with sub 50-millisecond protection switching.

Let Ekinops help you realize your goals of improving network reliability and uptime while also driving down the cost of operations by making your network self-sufficient.

## About Ekinops

Ekinops is a leading provider of open and fully interoperable Layer 1, 2 and 3 solutions to service providers around the world. Our programmable and highly scalable solutions enable the fast, flexible and cost-effective deployment of new services for both high-speed, high-capacity optical transport networks and virtualization-enabled managed enterprise services

Our product portfolio consists of three highly complementary product and service sets: Ekinops360, OneAccess and Compose.

**EKINOPS360**  
Dynamic Optical Transport

- Ekinops360 provides optical transport solutions for metro, regional and long-distance networks with WDM for high-capacity point-to-point, ring and optical mesh architectures, and OTN for improved bandwidth utilization and efficient multi-service aggregation.

**ONEACCESS**  
Fast Network Virtualization

- OneAccess offers a wide choice of physical and virtualized deployment options for Layer 2 and Layer 3 access network functions.

 **COMPOSE**

- Compose supports service providers in making their networks software-defined with a variety of software management tools and services, including the scalable SD-WAN Xpress.

As service providers embrace SDN and NFV deployment models, Ekinops enables future-proofed deployment today, enabling operators to seamlessly migrate to an open, virtualized delivery model at a time of their choosing.

A global organization, with operations in 4 continents; Ekinops (EKI) - a public company traded on the Euronext Paris exchange - is headquartered in Lannion, France, and Ekinops Corp., a wholly-owned subsidiary, is incorporated in the USA.

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