Questions Every Service Provider Should Ask

Evaluating IP/Optical Network Controllers

Technical Brief

Selecting the right IP/optical network controller is critical for end-to-end service delivery in a multilayer, multivendor, multidomain network. There is no room for capability gaps in this solution because not only will business suffer, but internal teams who support the solution will operate inefficiently and costs will rise. As such, we encourage you to carefully consider your options. We suggest asking suppliers the following questions to determine whether the solution can truly deliver comprehensive, accurate visibility and control. To understand how our NetFusion controller addresses these requirements, please ask any Sedona representative or contact info@sedonasys.com.

Multilayer

Multilayer is a requirement for reliable and optimized service delivery. Without complete multilayer capabilities, the network controller cannot determine the relationships between the layers and therefore, cannot fully analyze the network. For example, without optical awareness and knowledge of multilayer relationships, the network controller cannot know the service repercussions of optical failures and maintenance activities, let alone how to best route services in the IP/MPLS layer. Nor can it achieve full optimization or restoration without complete IP/MPLS knowledge, including available protection schemes.

1. Is the solution multilayer? Can it automatically detect and correlate IP and optical topology and traffic?
2. Provide a full breakdown of supported models in the Network and Data Link layers (IP/MPLS). Include further questions to determine if the following are supported.
    - IP links and bundled IP links (including both logical and physical interfaces)
    - LSPs
    - VRFs
    - VLANs
    - L2VPNs
    - L3VPNs

3. Provide a full breakdown of the supported Optical layers. Include further questions to determine if the following are supported.
    - ODU2
    - ODU4
    - OCh
    - OMS
    - OTS

Multivendor

With a multilayer solution in place, you have a great start, but the solution must also be vendor agnostic. With today's multitude of acquisitions and mergers, most networks consist of equipment from multiple vendors without the ability to see and control all devices. Without this multivendor visibility and control, the IP/optical network control solution is incomplete.

1. Does the solution support multiple vendors?
2. Which IP/MPLS vendors does the solution support?
3. Provide a list of supported router operating systems and software versions.
4. Which optical vendors does the solution support?
5. What is the estimated time for adding support for a new vendor?
6. Does adding support for a new vendor require a new release of the solution?

Multidomain

Networks are managed by many systems, often by legacy systems with an eye to future control via SDN. Each of these systems and controllers represent a unique management domain. Without full support for the discovery and control of not only each domain, but also of the handoffs between them, you cannot guarantee end-to-end service delivery.

1. Can the solution automatically map multiple optical domains?
2. Can the solution automatically map the connectivity between the domains?
3. Does the solution support native Ethernet handoff between the domains? This is sometimes called "1310 handoffs."
4. Does the solution support ODU handoffs between the domains?
5. Which IP/MPLS EMS/NNM systems and SDN controllers are supported? Example answers could be support for the Nokia SAM management system and Juniper NorthStar SDN controller.
6. Which optical EMS/NNM systems and SDN controllers are supported? Example answers could be support for the Coriant 7194 management system and Infinera OTSv SDN controller.

Access and Deployment

Only with full knowledge of which network elements and standards the solution supports can you be sure that your network can be fully discovered and controlled.

1. What are the supported operating systems for the solution?
2. What are the system requirements?
3. Does the solution require any external data sources, such as inventory systems?
4. Which northbound and southbound protocols does the solution support?
5. Does the solution support direct access to routers? If yes, how does it reach the routers?

6. Does the solution support virtual routers configurations that split one physical device into several virtual instances with different configurations?
7. Does the solution support direct access to optical network elements? If yes, how are they reached?
8. Provide a list of the supported optical network elements. Does this list include ROADMs, regenerators, amplifiers, and optical wavelength switches?
9. Does the solution support T-API (Transport API)?
10. How does the solution's architecture support migration from legacy equipment, such as older EMS/NMS systems, to next-generation SDN controllers?
11. Is new equipment necessary when new apps are added?
12. What is the estimated time to deploy the solution in a live network?

Published: October 12, 2017, v1