The Customer Journey to SD-WAN: Functional, Technical, and Economic Considerations

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Purchasing Considerations for SD-WAN

A Checklist for Making the Right SD-WAN Choice

Resistance to Change

Typically, there will be some roles within an organization that may resist the change to moving to a SD-WAN. Objections that might raised include the current solution is working just fine, the new technology is untried, there may be extra and hidden costs involved, and that there is a need to protect the existing investment in IP routers. These are all fair questions to challenge the logic of adopting SD-WAN technology.

- **Current solutions work fine** – Current Analysis has looked at the demands on enterprise bandwidth patterns and established that needs are growing year-on-year. Adding dedicated capacity can be costly, and leveraging the public Internet for corporate traffic might not come with sufficient traffic prioritization and path selection for jittery applications. Adopting SD-WAN technology is likely to allow the user to get more from existing bandwidth by giving more control of traffic steering and allocation to specific applications.

- **End-user feels the apps are performing well** – or the end user experience is currently good – as the business adapts, and as traffic increases, then congestion issues could very quickly negatively impact the experience. Certain digital transformations including the take up of for example IoT, machine learning, cognitive computing, AI and big data (real time analysis) are likely to put new demands on the traffic and the user whilst now might be tolerating the app response, this will be impacted moving forward.

- **It is too risky to adopt untried technology, let’s not be the guinea pig!** – The advice here is to try a small low-risk implementation before committing to a wider-scale SD-WAN transformation. Additional to this enterprise buyers of network and IT should be asking their potential suppliers for case-studies and customer references to get an insight into real experience with deployments in the field, and testimonials that prove success.

- **Hidden costs** – Budgeting for a SD-WAN deployment requires strict best practice procedures to ensure that a project does not go over budget. The SD-WAN provider should be cooperating on circuit design and costing at the early stages of any project to foresee and add budget to any areas that might demand additional spend, for example for additional connectivity, capacity, or CPE (managed SD-WAN gateway). Overall, the fact that less on site hardware will be needed in the future for various functions that become virtualized in a SD-WAN, such as firewalls, WAN optimization, and acceleration, and that SD-WANs should evolve to support agnostic access namely low-cost broadband, WiFi, and 3G/4G, should give opportunities to make savings.

- **Protect existing investments** – SD-WAN offerings from vendors in the market should be assessed to evaluate whether there are options available that make use of the existing IP router footprint. There are several operators in the market that offer some form of SD-WAN that will be complimentary to the existing IP routers already in place.
Driving Consensus Among Functional, Economical and Technical Stakeholders for SD-WAN

There are many SD-WAN platform and service vendors in the market. Corporate IT departments are advised to try out multiple small scale solutions before making any major commitments. As the SD-WAN segment matures, there are more off-the-shelf products available, and these types of offerings give enterprises a quick on-ramp for Proof of Concept testing.

Access to an IT consulting or advisory service around possible SD-WAN designs is also a good idea in order to learn from the experience of experts in the field. The enterprise customer should be aware that a single WAN link to a branch will not benefit from SD-WAN as such, but rather for the solution to hit the sweet spot there should be multiple dedicated and broadband link options. SD-WAN might be applied on a single link to an end point on the WAN in the case that other sites within the estate, for example main HQ locations, and data centers, will all be leveraging multiple links with an SD-WAN platform in place to manage those links with path selection and other features.

The SD-WAN supplier should be giving out messages that appeal to a particular enterprise’s specific needs, because it demonstrates a customer-centric attention to meeting common sets of problems that businesses face.

The SD-WAN concept also facilitates the themes of freedom and manageability by the simple fact that multiple hardware appliances for various functions e.g., firewall, do not need to be shipped to the customer premise. This represents a major change for network and IT since the physical appliance footprint on-site should reduce dramatically along with all the implications that derive from traditional hardware devices such as power supply, space and cooling.

Multiple links are often needed to multiple clouds – including both private and public ones. In this potentially complex scenario, path selection enabled by SD-WAN can be helpful for ensuring good user experience on the mission critical apps, whilst non-urgent traffic can be steered over the public Internet and cloud.

SD-WANs should serve up tools that help steer packets over the network to directly improve the response times and performance of key business apps. As companies seek to penetrate new geographies and expand through acquisition, the SD-WAN can bring up connected sites faster than traditional WAN solutions through the application of template options and provisioning automation.

DIY vs. Fully-managed SD-WANs

Enterprises can choose to source either a fully managed SD-WAN, in which case a provider will handle the hassle of deployment, provisioning, and ongoing maintenance and changes; or consider or more DIY approach. For a DIY implementation, the business has to be ready to deal with a certain level of involvement and resource allocation, and have a strong internal IT dept making sure that the skills exist for managing a new service and emerging technology. DIY SD-WAN is likely to have more hidden costs than sourcing a fully-managed solution. This is because providers of managed services should have the experience in place to propose an accurate project budget and will have foreseen and calculated circuit sizes in advanced networking planning consultations.

The following table summarizes main pros and cons of a DIY SD-WAN implementation versus sourcing a fully managed offering from a service provider:
### PROS

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<th>Service provider is continually assessing the various platforms available as well as developing any in-house services on behalf of its customers</th>
<th>A DIY approach gives less buying leverage – once a platform has been selected ongoing changes to a potentially propriety solution may involve technology upheaval</th>
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<td>The hassle and risk of troubleshooting, performing updates, and maintenance activities are the responsibility of the provider</td>
<td>The enterprise must have the internal capabilities to maintain the system, demanding expert human resources, time and effort</td>
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<td>The service provider is well-placed to fine-tune the network connectivity both at the local access and core to ensure good applications performance</td>
<td>Making sure that the network performance characteristics support sufficient applications throughput can throw up challenges</td>
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<td>Sourcing of equipment and CPE is typically supported via a global operations and logistics network, including partners, to help replace faulty kit on-site quickly</td>
<td>Global equipment sourcing and logistics can be a complicated and time consuming (for example the replacement CPE is stuck with the local customs and import authority) for the enterprise to manage by themselves</td>
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### CONS

#### Addressing Functional Requirements

Working on the premise that SD-WAN can offer more freedom with regards to deploying corporate applications and being able to manage the visibility and control over their performances means functional improvements for the enterprise. A number of business functions can be improved, for example faster reactions to customers by sales, suppliers, and capitalizing on market conditions (e.g., penetrating new geographies).

#### Addressing Economic and Budgetary Requirements

Burgeoning traffic growth on corporate networks is something that needs to be reined in, and according to Current Analysis surveys of the enterprise, companies frequently invest in more bandwidth. As SD-WAN platforms become increasingly available and proven, the deployment of alternative SD-WAN solutions offers up potential cost-savings on deploying expensive traditional MPLS circuits and interconnections. However, IT departments will still need to know how apps are behaving in the network and be able to harness certain control mechanisms in order to prevent congestion and a negative impact on business outcome or end-user experience.

A second factor related to SD-WANs that can help with WAN economics is the broader flexibility that the services can offer with regards to commercial agreements, billing and contracting, especially when changes are required. SD-WANs should support pay-as-you-go networking (sometimes referred to as Network-as-a-Service or ‘NaaS’); including provisioning of circuits, circuit design and changes to topology, and adjusting bandwidth, all achieved with automation.
3. Addressing Technical Requirements

Traditional WAN services demand considerable effort and resources to maintain and especially to change. Typically network engineers face complex tasks when they need to resize the network, add sites, add users, and make policy adjustments. The service chaining and tromboning of network traffic through common Internet gateways result in constricted efficiencies and yet more complexities in terms of isolating and improving degradation of service and poor app performance. The implications of SD-WAN mean that these complex tasks should be reduced by several degrees.

SD-WAN does not mean that network engineering becomes easy as such; there are different factors to consider and traffic must still be sensibly steered over the cloud and through the private WAN to ensure an optimally functioning network. Technical and IT departments should be able to manage the corporate WAN estate with more visibility and automated functions for fine tuning though a single interface that can be integrated with enterprise network monitoring and management tools.

Orchestration of the many moving parts that constitute an enterprise WAN service is being separated onto its own plane with SD-WAN, which means that a SD-WAN controller ‘oversees’ a horizontal software-defined network. IT management of the network therefore becomes akin to working with software and open source code, and as solution become sophisticated, management will be integrated with the customer service online space.

Moving beyond the above, IT departments can then leverage VNFs to drop new products and servers into the WAN as VMs or code sequences in containers – in other words enabling ‘containerization,’ an approach to application development and deployment that is gaining favor in corporate IT teams.

Overall, SD-WAN can enable the IT team to perform previously complex and time-consuming tasks with relative simplicity and securely, with automation eradicating much of the human error that has caused technical problems in the traditional WAN world.

Recommended Buyer Actions

SD-WAN services have become many and varied, spanning fully-managed offerings and more DIY or patchwork quilt builds. Enterprises should be thoroughly investigating a number of platforms with the assist of a check-list for the ideal feature sets, service manageability, and price points.

There are many claims in the market around TCO, but these must be listened to with caution because there can be hidden costs and where savings may be made in some areas, such as bandwidth and physical appliance savings, there may be higher costs in others, such as for software licenses and service management. There may also be a one-time cost associated with the time needed to implement a change, and this all has to be taken into account.

Enterprises should check that the chosen SD-WAN provider partner has prior experience deploying and running the SD-WAN platform for clients of similar size and complexity. Cloud-based WAN management should be simpler than static systems.

There may be too much expectation for the SD-WAN to decrease network services spend, but this may not be the case when taking all into consideration. It is more likely that the optimization features of smart traffic steering increases enterprise efficiency and other functional benefits, while making the most of existing dedicated and broadband accesses.