



Data Center Optimization: What it Means & Why You Need It



Why You Should Read This Guide



The purpose of this document is to demonstrate why you should optimize your data center and act as a practical guide for network architects and operators looking to start the optimization process.

By automating and optimizing your data center, you can:

- Achieve operational efficiency
- More easily and reliably deliver applications and modern services to your customers
- More effectively leverage new business opportunities including big data, high-performance computing, social and collaborative computing, and enterprise mobility

This guide offers the practical guidance and advice you need to choose a solution that suits your organization's needs and help you begin your data center optimization efforts.



“To turn a workhorse into a racehorse, you need a data center that can evolve alongside your business to provide the agility and efficiency you require to support business growth.”



The Drawbacks of the Software Defined Network Approach

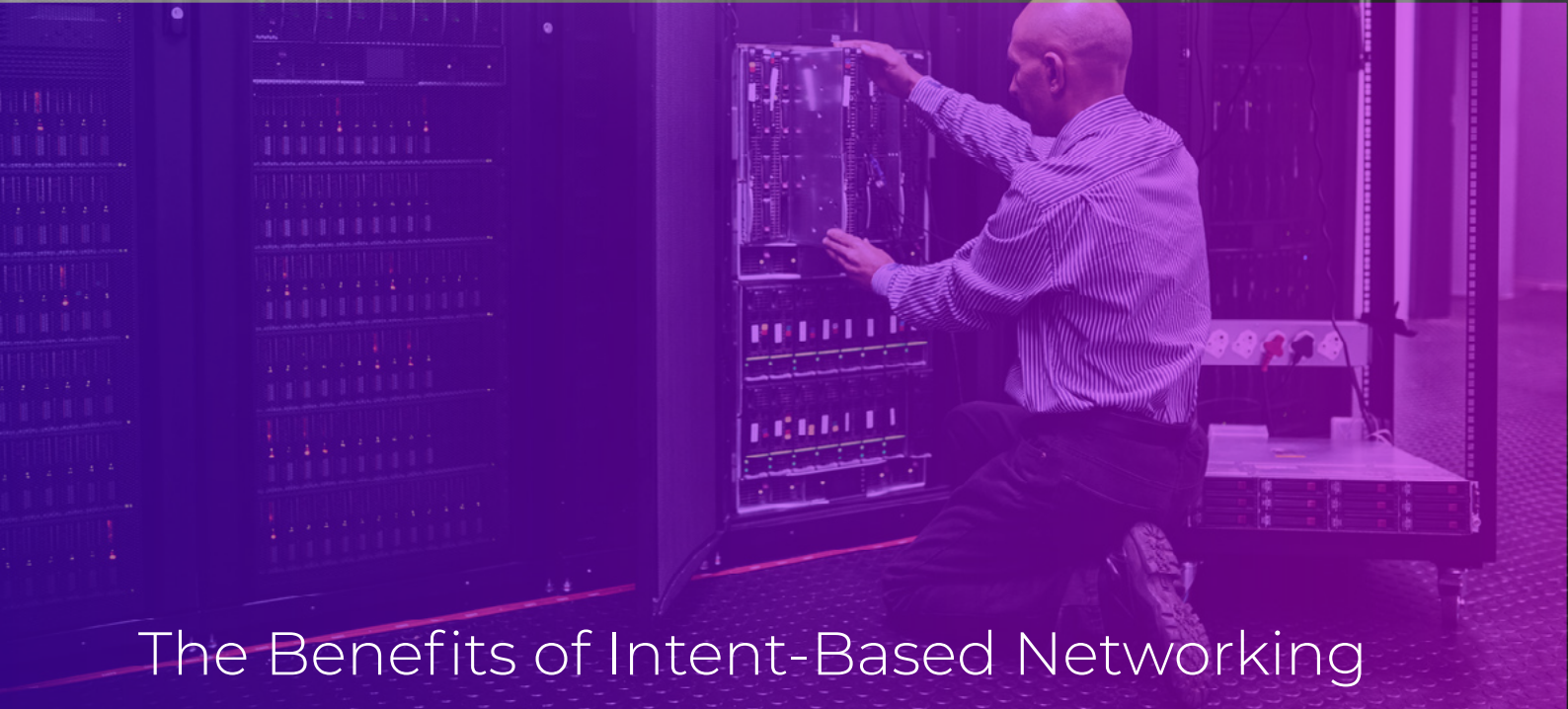
Traditional 3-tier data center networks are expensive to operate, maintain, and troubleshoot and can draw critical IT team members away from projects that support business development and expansion goals. Every minute your team spends maintaining and troubleshooting your network is a minute they aren't spending on other tasks, reducing your overall efficiency.

To address these challenges, some businesses have turned to SDNs. Unfortunately, current SDN approaches depend on closed and integrated underlay and overlay solutions, which are overly complicated to use and deploy, are difficult to validate from an operations perspective, and

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As such, many businesses are turning away from SDNs and opting for a new modern, leaf-spine 3-stage, 5-stage Clos architecture that relies on standard PGP, EVPN, and VXLAN protocols. This innovative approach creates an architecture that is simple to deploy, use, and manage, and can be scaled almost effortlessly while building on decades of tried-and-true networking knowledge. This standards-based approach to architecture (which has already been widely adopted by hyperscalers) enables organizations like yours to deploy business services faster than ever, effectively supporting your digital transformation. In a world where every second counts, you need a fast, reliable, optimized data center solution to best support your





The Benefits of Intent-Based Networking

Intent-Based Networking (IBN) refers to software that can abstract the desired outcomes of your network services (such as connectivity, security, auditing, compliance, and performance) to simplify network infrastructure management and automate the delivery of these network services across their entire life cycle. In short, IBN ensures that the network you design is exactly the same as the network you deploy right down to the cabling.

IBN continuously and proactively validates the current operational state of your network against its intended state. By comparing the live network against the intended design, any deviations can be quickly detected and addressed. To keep things simple, all configuration management and continuous validations are performed by a single software package, creating an agile and reliable network designed to provide stunning operational efficiency.

Without IBN, organizations are forced to cobble together an eclectic collection of programs that aren't actually designed to work together. This patchwork approach hinders agility, compromises reliability, and drives up costs since multiple software programs are required to keep the whole network limping along. This means that greenfield deployments become legacy systems almost instantly, turning a critical tool into an obstacle to be overcome. Organizations that don't use IBN are also locked in with hardware vendors, eliminating the most powerful negotiation tool procurement organizations have with vendors.



Choosing the Right Solution to Meet Your Needs

When it comes to data centers, less is more. By choosing a solution that prizes simplicity, you can improve efficiency, reduce costs, and free up your team to work on projects that contribute to organizational growth instead of spending countless hours each year troubleshooting and maintaining your data center.

A Holistic Approach

Many data center design, deployment, and operations options are fragmented, requiring organizations to purchase multiple products and then attempt to integrate them in a way that allows them to work together. Not only does this increase costs, but it can decrease efficiency as your team struggles to make non-compatible programs work together smoothly.

Choose a solution that:

- Uses purpose-built software only (not multiple disjointed products)
- One simple interface
- Supports the full lifecycle
- Automates your daily operations
- Uses intent-based analytics



Ease of Deployment & Use

You and your team have long to-do lists, so you need a solution that is fast and easy to deploy so you can minimize downtime. You also want a solution that offers an intuitive UX experience in order to facilitate fast adoption and allows you to reuse existing skills and tools to reduce costs.

Choose a Multi-Vendor Friendly Solution

When selecting a vendor or solution, look for products that are multi-vendor compatible. This ensures you won't be tied to a single vendor or solution and providing you with the options you need to remain flexible and agile as your organization grows. You should also look for solutions that automate the full life cycle of network design, deployment, and operation so that your team can devote the majority of their time to projects that support business growth.

By choosing a solution that is standards-based and supports multiple vendors, you have the freedom to select vendors based on your needs rather than remain locked in with whichever vendor you purchased equipment from first. You should also look for solutions that support open networking and open-source Network Operating Systems (NOS).

Consider the Cost Savings & Deployment Time

You need a flexible, reliable, agile solution that isn't costly to deploy or maintain. When it comes to comparing solutions, you should consider more than just the cost of the solution itself and also include the cost savings associated with increased efficiency and productivity. Automated solutions are ideal because they require almost no people hours to deploy, operate, or maintain, freeing up your team for other tasks.

Look for Reliability

Your data center is the backbone of your entire organization, so you need a reliable solution. Solutions that rely on a single source of truth (such as those that use IBN) are able to continually validate the network against expressed intent, eliminate unnecessary complexity, assess vulnerabilities, and minimize outages. You need a network that remains reliable, secure, and resilient even when faced with sudden or extensive change.

Choose Vendors that Offer Ongoing Support

When it comes to vendors, make sure you avoid any "set it and forget it" attitude. By choosing vendors that offer ongoing support, you know that you'll have access to a team of data center experts should something go wrong. The right vendor will be there for you every step of the way, whether you need help with your initial design or are ready to scale up as your business grows.



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