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The CIO's guide to AI infrastructure readiness



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As businesses continue to expand their use of AI, many are discovering that their existing IT infrastructure may not be equipped to support the technology on a larger scale. While an AI application may perform well during initial testing, introducing it across hundreds of locations can create problems that weren't apparent during the pilot phase.

One area of concern is the enterprise network, which already supports everything from video conferencing and CRM systems to financial transactions and other critical business applications. Adding AI workloads can put additional pressure on network capacity and performance, particularly when large amounts of data must move between business locations, data centers and cloud environments.

Rob Roache, Group vice president of strategic markets at Spectrum Business®, says companies need to consider these requirements early, before decisions about applications and deployment locations have already been made.

This white paper examines the infrastructure considerations CIOs should address as AI adoption grows, including planning, connectivity, network performance, and ongoing operations.



Planning for AI growth

One challenge facing CIOs is understanding how much AI activity is already taking place throughout their organizations. Individual departments may be experimenting with applications without involving IT, making it difficult to anticipate the infrastructure required for broader deployment.

Roache compares the situation to the early days of cloud computing, when business units began adopting services independently and IT departments struggled to maintain oversight. He recommends bringing application developers, infrastructure specialists, network teams, and business leaders together to discuss AI initiatives before pilots begin.

These conversations should establish where data originates, where processing will occur, and how many locations may eventually use an application. There may also be requirements involving additional equipment, power, and physical space, particularly when processing takes place at individual facilities.

Evaluating connectivity and capacity

Different AI applications have different network requirements. A retailer using cameras to monitor empty shelves, for example, may need information processed locally so employees can respond quickly. Another application may involve transferring large amounts of data between business locations and a central data center. Organizations must determine whether their existing connectivity can accommodate these workloads, including the capacity, latency, and reliability each application requires.

Roache describes a large financial institution evaluating dedicated high-capacity connections between its branches and data

centers to accommodate AI traffic. The bank is considering keeping those workloads separate from its existing SD-WAN environment to avoid interfering with other business applications.

For CIOs, geographic reach is another consideration. Networks must connect the locations where AI workloads will operate, whether that's individual branches, enterprise data centers, or cloud environments. Depending on the application, additional Ethernet services, dedicated internet access, or high-capacity transport connections may be necessary.

Protecting existing business applications

A national retailer working with Spectrum Business encountered network performance concerns while testing AI applications in its stores. The company was exploring applications involving cameras, checkout processes, and inventory management. During the trials, however, it began experiencing problems with existing store applications.

Payment transactions were a particular concern because the retailer needed to ensure that new AI workloads wouldn't interfere with customers' ability to complete purchases. According to Roache, the company slowed its trials while reevaluating its network architecture, connectivity, and application priorities.

The experience illustrates the importance of considering more than available bandwidth when assessing infrastructure readiness. CIOs should understand which applications require priority, how traffic will be routed, and whether the network has sufficient redundancy to maintain operations if connectivity is disrupted. Service-level agreements and repair commitments are also important considerations, especially as AI becomes part of business-critical processes.



Managing infrastructure as AI expands

As organizations introduce more AI applications and connect additional locations, IT departments may face growing demands involving network provisioning, monitoring, and troubleshooting. Managing multiple connectivity providers can add to the workload, particularly when changes require coordination across different networks and service arrangements.

Roache identifies automation and operational visibility as important capabilities for organizations preparing to support additional AI workloads. The ability to modify connectivity, adjust capacity, and monitor network performance can help IT teams accommodate new applications without repeatedly redesigning their infrastructure.

Organizations should also evaluate the technical support available from their connectivity providers and how quickly network problems can be addressed.

Preparing for the next phase of AI

CIOs assessing infrastructure readiness should have a clear understanding of which AI applications are being developed, where they will operate, and what demands they will place on existing networks. They should also consider whether additional capacity can be introduced as requirements change and how new workloads might affect current business operations.

Roache believes closer coordination between business leaders and IT infrastructure teams is essential, particularly as AI experimentation becomes more widespread.

"The network is the platform for AI, and it needs to be part of the strategy from the beginning," he says.

As organizations continue exploring new uses for AI, early attention to network planning can help prevent infrastructure limitations from delaying deployments or affecting the applications businesses already depend on.

Build an infrastructure foundation for AI

Prepare your network for the growing demands of enterprise AI with Spectrum Business. Explore how Spectrum AI AcceleratorTM can help your organization address connectivity, capacity, and operational requirements as AI adoption expands.

Learn more about Spectrum AI Accelerator™.

