velo

IT Infrastructure Upgrade Planning Guide

A GUIDE FOR BRINGING ORDER
TO SPAGHETTI-TANGLED
IT CLOSETS FOR GROWING SMBS

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Order and Organization Matter

Let's think about aviation, space exploration, and military bases where precision and order in technology saves lives and creates safety for the people on board, on base, or out in space. The cabling and documentation in those situations are impeccable because lives depend on it. Your business is your livelihood and the livelihood of your employees. Your customers and clients depend on you - why wouldn't your IT provider treat your server room or network closet as mission critical?

Often a matter of talent, care, or planning, a messy IT closet gets worse as time passes. Changes to where desks are located, to where phones and printers are located, and the addition of new staff are all events which add new tangles when proactive planning is lacking. A clean, well-organized server room or network closet is achievable if your IT services provider starts with a carefully designed and well documented plan that allows room for future changes and growth. **Cable management perfection is just the cherry on top** of a successful IT infrastructure upgrade project. IT infrastructure upgrade projects fall into the 80/20 rule without exception; **their success is 80% dependent on planning and 20% dependent on execution.**

The processes and standards that drive successful IT upgrade projects here at Velo IT Group start with these planning steps – the 80%. We hope this guide will be helpful to you and your team as you make decisions about IT upgrades and infrastructure projects at your organization.

Start with a Plan

Establish Business Requirements

BEFORE EVEN LOOKING AT A PROPOSAL

As you begin to plan out your IT upgrade project, you can drastically improve the end result by ensuring that all your cards are on the table. Business requirements describe what your company needs to operate effectively. These are functional needs grounded in how people work, how the business generates revenue, and what risks or regulations must be managed. They don't prescribe how the technology will meet the need, only what outcomes are required.

HEADCOUNT AND DEVICE COUNT:

Number of employees, laptops, desktops, VoIP phones, and printers in use.

OFFICE LAYOUT AND SIZE:

Total square footage, density of people in each area, and where consistent wireless coverage is needed (e.g., warehouse, conference rooms).

GROWTH PROJECTIONS:

Expected team growth, expansion plans, and how quickly those changes may occur.

WORK SCHEDULE AND ACCESS:

Normal operating hours and expectations for after-hours system availability.

REGULATORY COMPLIANCE:

Any specific standards or frameworks the business must comply with (e.g., HIPAA, PCI, CMMC).

UPTIME EXPECTATIONS:

How much downtime is acceptable and what systems must remain operational during outages.

DATA PROTECTION GOALS:

Recovery Point Objective (RPO) and Recovery Time Objective (RTO) targets for data backups.

APPLICATION HOSTING NEEDS:

Which business-critical applications will be hosted on-site and what their performance demands are.

POWER CONTINUITY:

Minimum desired runtime during a power outage based on business operations and power reliability.

WIRELESS & COLLABORATION NEEDS:

Number of WiFi-connected devices, expected wireless performance, and A/V needs for meetings or huddle spaces.

How much room for growth is needed?

Not only does your IT provider need to know what you need today, they also need to know how much room for growth is needed. When IT providers successfully plan for change management and future growth, they do not end up just plugging things in as needed and adding gear in the rack in sub-optimal locations. If you can provide answers to all of the business requirement questions above, and your IT provider is able to use those details to design the system architecture, you can avoid problematic change orders and last-minute project additions.

As you might have guessed, those 11th hour changes are some of the biggest culprits in producing a messy, tangled IT closet.
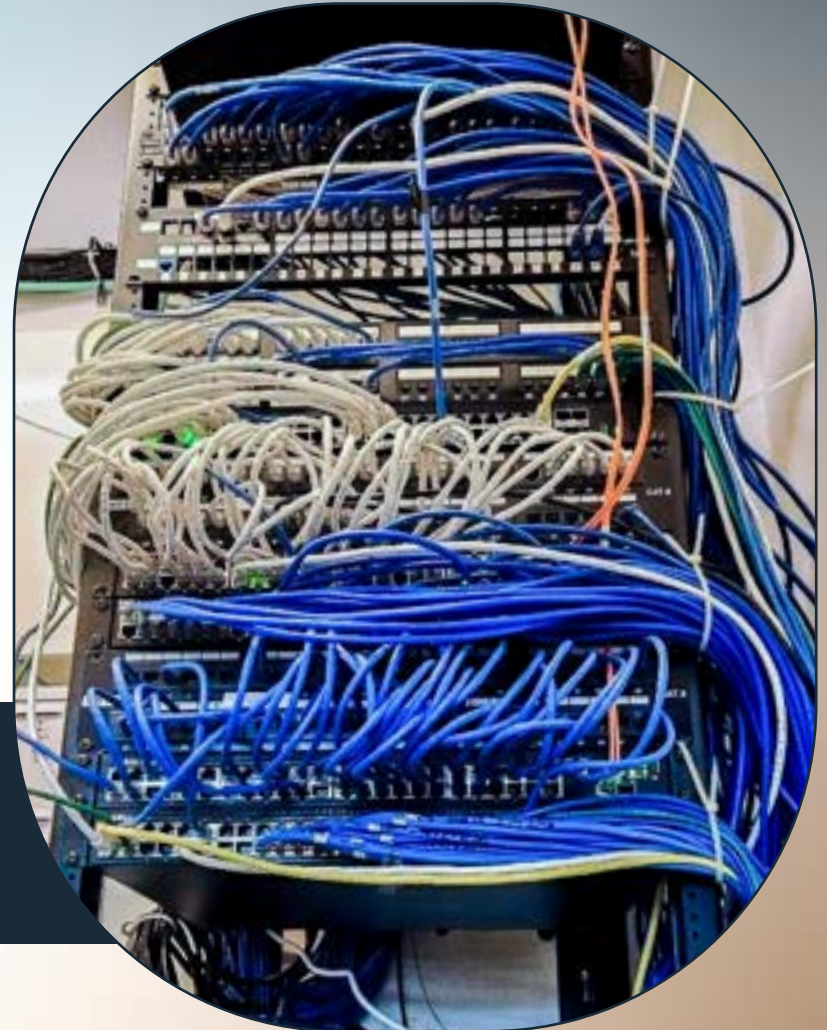
Evaluate and Define the Technical Requirements

Once your business requirements are clear, you and your IT provider can define the technical requirements that will bring the plan to life.

- What pre-existing equipment can be leveraged in the new environment? You'll need to get on the same page about what pre-existing gear still has useful life and what gear absolutely must be replaced.

- How much **bandwidth** will be required? Conducting the research and **doing the math** on this subject will impact what type of internet service and network equipment is necessary to support that bandwidth.

- What sort of quality of service (QoS) parameters need to be set on the network to prioritize the most critical traffic? For example, most companies prioritize voice and video traffic to avoid dropping calls when someone downloads a video or large file.

- What are the desired **VLANs** to support segmentation of the wireless network for guests, executives, engineers, warehouse workers, or specific devices?

TRANSLATE BUSINESS NEEDS INTO TECHNICAL SPECIFICATIONS

The answers to these questions will determine the hardware that is going to be installed such as:

- Number of Wireless Access Points

- Number of Work Area Outlets (Ethernet Ports)

- Number of Network Switches

- Throughput and Security Features of Firewalls

- Patch Panels

- Number and Size of Servers

- Capacity and Speed of Storage Solutions

- Equipment Racks

- Cable Management Systems

Network Diagram and Rack Elevation Plan Review

While many IT guys out there would argue that these diagrams are overkill for small and mid-sized businesses, we would counter with pictures of our well-organized server rooms that are easy to maintain as our clients grow and change, while theirs are spaghetti!

ASK YOUR IT PROVIDER TO DELIVER THESE BEFORE SIGNING OFF

If your IT provider is able to provide these documents, what should you be looking for?

Look to be sure there is order to their plan. Ask them to explain the rhyme and reason. At Velo, we ideally like to have a network rack and separate server rack. For the network rack, we put patch panels just above each switch.

Pairing a 48 port switch to a 48 port patchpanel allows us to use 8" direct patch cables that add order and make troubleshooting a bad cable, bad connection, or simple move/add/change a two minute job rather than a two hour job.

For the server rack, we use a fairly standard method of stacking and racking equipment with UPS and battery units on the bottom, followed by storage as you move up, then servers above storage, and finally top-of-rack switch.

BEFORE

AFTER

Clean Cable Management = Less Downtime

LOOK TO BE SURE THERE IS PHYSICALLY "ROOM TO GROW."

One commonly overlooked scenario involves leaving room to grow. We consider unused floor or building capacity and consider, in conjunction with the business requirements, what additional network capacity might be added in the years ahead. This enables us to leave room to easily add network capacity avoiding substantial overhaul costs and downtime.

Let's say you just moved into a new office and you've got 20 people on the floor, but you've got the square footage to hire 40 more. You may not want to buy additional networking equipment today, but you'll need to leave room for it down the road. Otherwise, your IT provider will ask you for downtime to re-cable everything. More commonly, they'll just drape long cables over existing equipment to get everything plugged into a new switch at the bottom of the rack.

What's worse is when they use whatever cable they have in their bag that day so you end up dealing with a colorful hot mess rather than just a regular hot mess.

This is more than aesthetic! Messy clusters make for error prone and downtime riddles moves, adds, and changes.

Unused space is covered here by blanking panels which protect the IT equipment from dust and temperature fluctuation.

Find Out If You Can Use What You Have

Sometimes the cost of a well-organized and good-looking IT closet is only a night or day of downtime while cables are unplugged and then replaced or reconnected using acceptable standards.

While this interruption can be avoided by simply "living with what you have," accepting this controlled downtime cost will save you from unpredictable and unmanageable downtime in the future. Imagine how much easier it will be for your IT guys to make changes to a neatly organized network rack compared to a spaghetti tangle rack.

We have tackled this for our clients by toning and testing each cable coming into the IT closet — ensuring all 8 conductors in each copper Cat5 or Cat6 cable are working properly so no one experiences intermittent speed and quality issues, and then we label each one individually! Also, we are commonly able to solve problems for people who have older cables running to their offices, and sometimes those are your high-level executives and owners who have been there the longest. We simply find out which cables have problems and replace them.

TIA Standard Labeling Procedures

MAKE SURE YOUR IT PROVIDER OR CABLING SUB USES TIA STANDARDS

What are TIA standards? The Telecommunications Industry Association is 100 year-old organization that has been establishing standards for interoperability, structured cabling, and other aspects of telecommunications.

TIA has specific standards that apply to network cable labeling and management. While compliance with these standards may sound expensive, in most cases the cost of implementation is relatively low. Basically, **every cable should be labeled using an orderly, documented system.** Cables performing different functions should meet specific criteria. They should be plugged in using a systematic method that empowers technicians to pinpoint network problems efficiently. This is a job that just takes time, and if you have a lot of cables that were managed haphazardly in the past, it's likely just a matter of re-cabling your existing infrastructure. Sounds daunting, but with a diagram and the right tools, a cabling contractor can get you untangled in a single weekend if you are keeping your existing wireless AP's, switches, routers, and servers.

Clean Cable Management: the Tip of the Iceberg

If your IT provider hasn't even mentioned re-cabling, they may lack the resources or mindset for proactive work. If *proactive* isn't in their vocabulary, don't worry. There is hope.

While you may look in your IT closet and think, "My current IT provider is the only one who knows what's going on in there. How could I manage a new team in getting this straightened out? It's sure to cause a massive interruption, and at least for right now almost everything is working," you're not alone in this sentiment. But it's not as hard as your current IT guys might lead you to believe. **As we said, success is 80% in the planning.**

Hiring an experienced team like Velo IT Group will give you world-class managed IT services and access to the seasoned IT veterans who will be able to architect the plan you need to go from spaghetti to order. We offer Hardware as a Service project financing that will help you conserve cash and recognize IT upgrades as a simple monthly expense rather than a big capital expenditure, and we take ownership of the results so you don't need to waste a minute more thinking about your IT closet.

Because let's be honest: a tangled IT closet is never just about cables. It's the tip of the iceberg. When your infrastructure is neglected, it's usually a sign that everything underneath—strategy, standards, documentation, and proactive support—is under water too. Let's fix that.
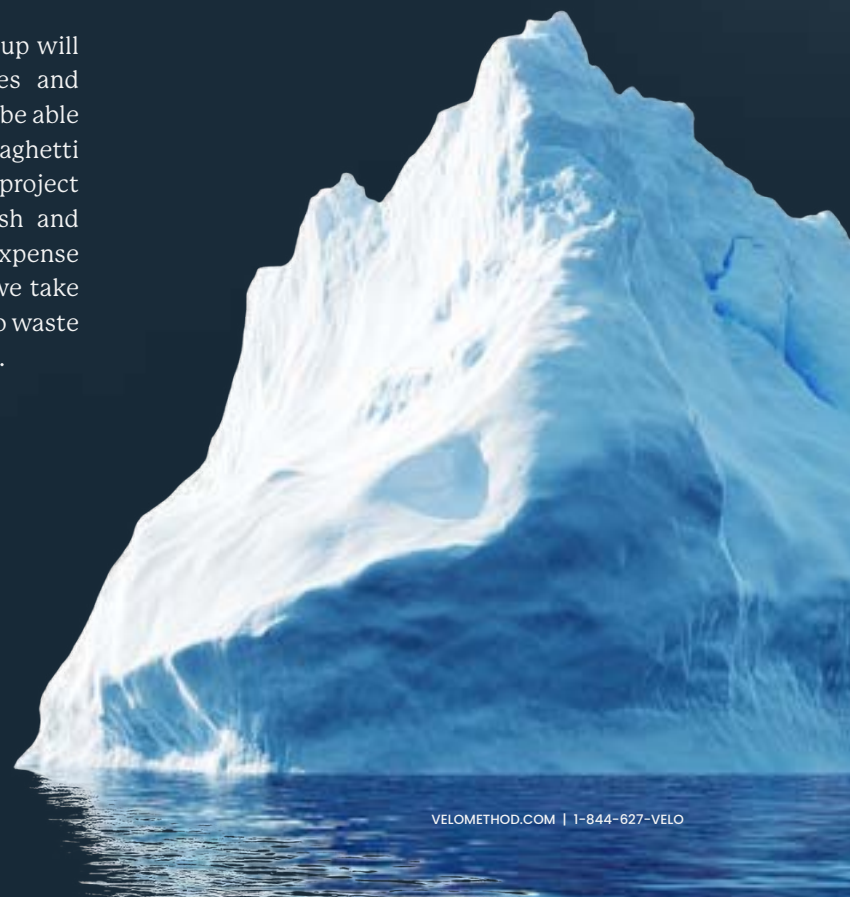
What Is Included in the Velo Method?

The Velo Method is a scientifically proven approach to delivering a secure and predictable IT environment. It allows us to provide our clients with IT support, security, strength, and strategy.

SUPPORT ENGINEERS

Our support team is a world-class group of metrics-driven IT professionals who deliver outstanding customer service.

SECURITY ENGINEERS

An advanced managed security services program which delivers a defense-in-depth strategy protecting clients from a wide variety of threats.

STRENGTH ENGINEERS

Through a strategic, ongoing process, our strength team works to regularly align our clients' IT environments with our list of 200+ best practices.

STRATEGY ENGINEERS

Our strategy engineers compile a Velo Method alignment report to create a forward-looking roadmap of where improvements should be made to make your IT systems as efficient as possible.

PARTNERSHIP

Our business model rewards stability, aligning our success with your seamless operations.

![velo](velo logo)

Interested in the Velo Method?

LET'S TALK ABOUT WHAT COMES NEXT

We would love to talk with you about your company and how a partnership with Velo IT Group can provide a more secure and predictable IT environment. We are happy to help clients with infrastructure upgrades and we would be thrilled to help you makeover your IT closet.

Give us a call at 214-214-VELO, or click the link below:

CONTACT US