A Small Business Guide to Creating Network Diagrams

Network diagrams document critical information about your enterprise network's hardware, security, and configuration. Learn how to create network diagrams and understand their benefits.

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When you started your small business, things were simple. Perhaps you had a single storefront. Maybe you were tapping away on a computer keyboard in response to customer queries, and you fulfilled orders helped by a few employees.

One day you look around and find everything has changed. Your company has an information technology (IT) department maintaining multiple applications that enable each order, sale, and customer service inquiry. You have a sprawling network of desktops, laptops, smartphones, and other digital devices.

And, to paraphrase The Talking Heads, you may ask yourself, "How did I get here? My God! What have I done?"

One way not to lose sight of the forest for the trees with your enterprise network is to use network diagrams. We'll go over their basics and the steps to create them, so your small business can enjoy multiple bottom-line benefits.

Overview: What is a network diagram?

Network diagrams visually document communication networks: components, connections, and how they're configured.

One example is a company's enterprise computer network, consisting of servers, routers, endpoint devices, and software applications. These diagrams can
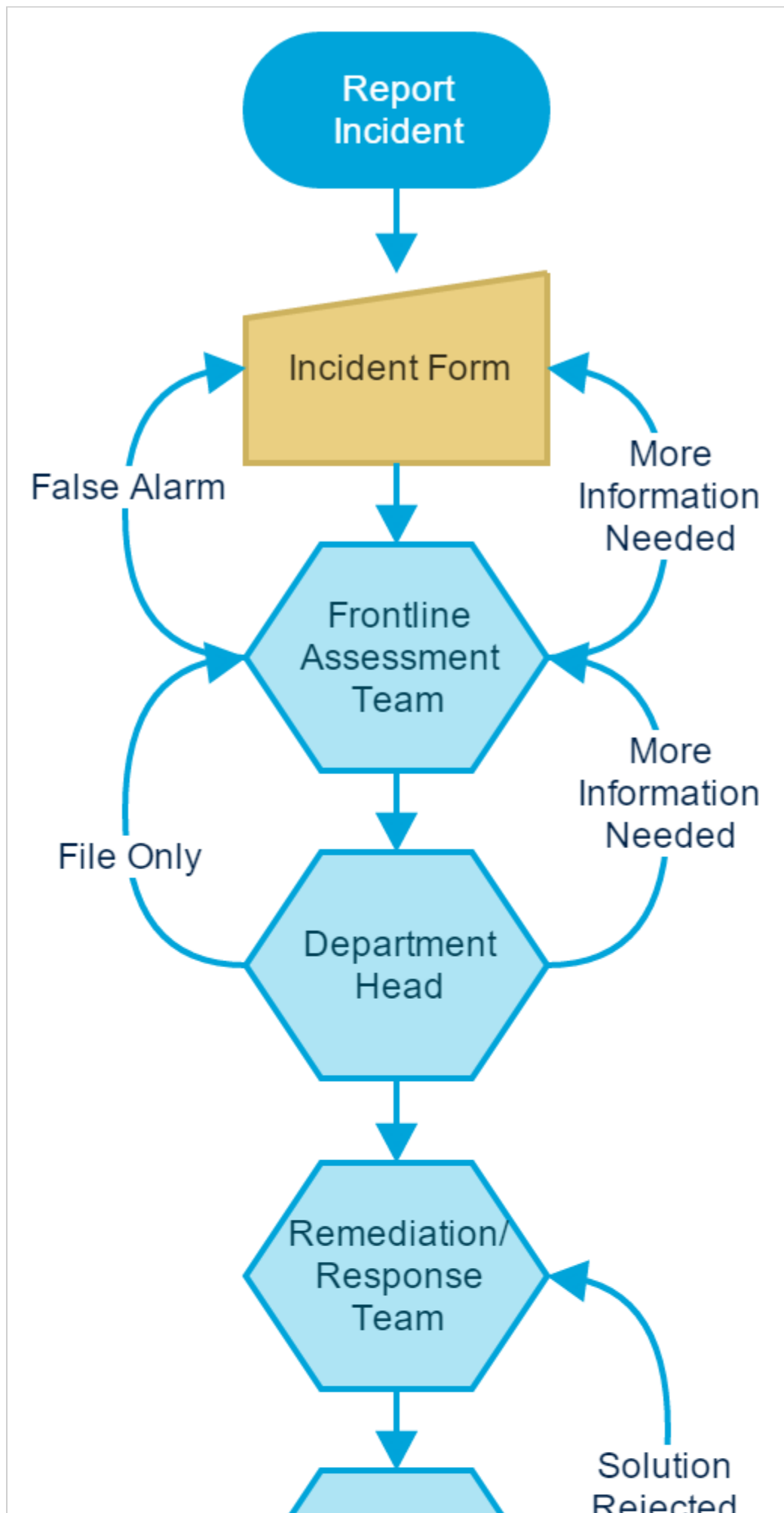
document the physical location of hardware and connectors, similar to a floor plan, or illustrate their conceptual organization and communication principles.
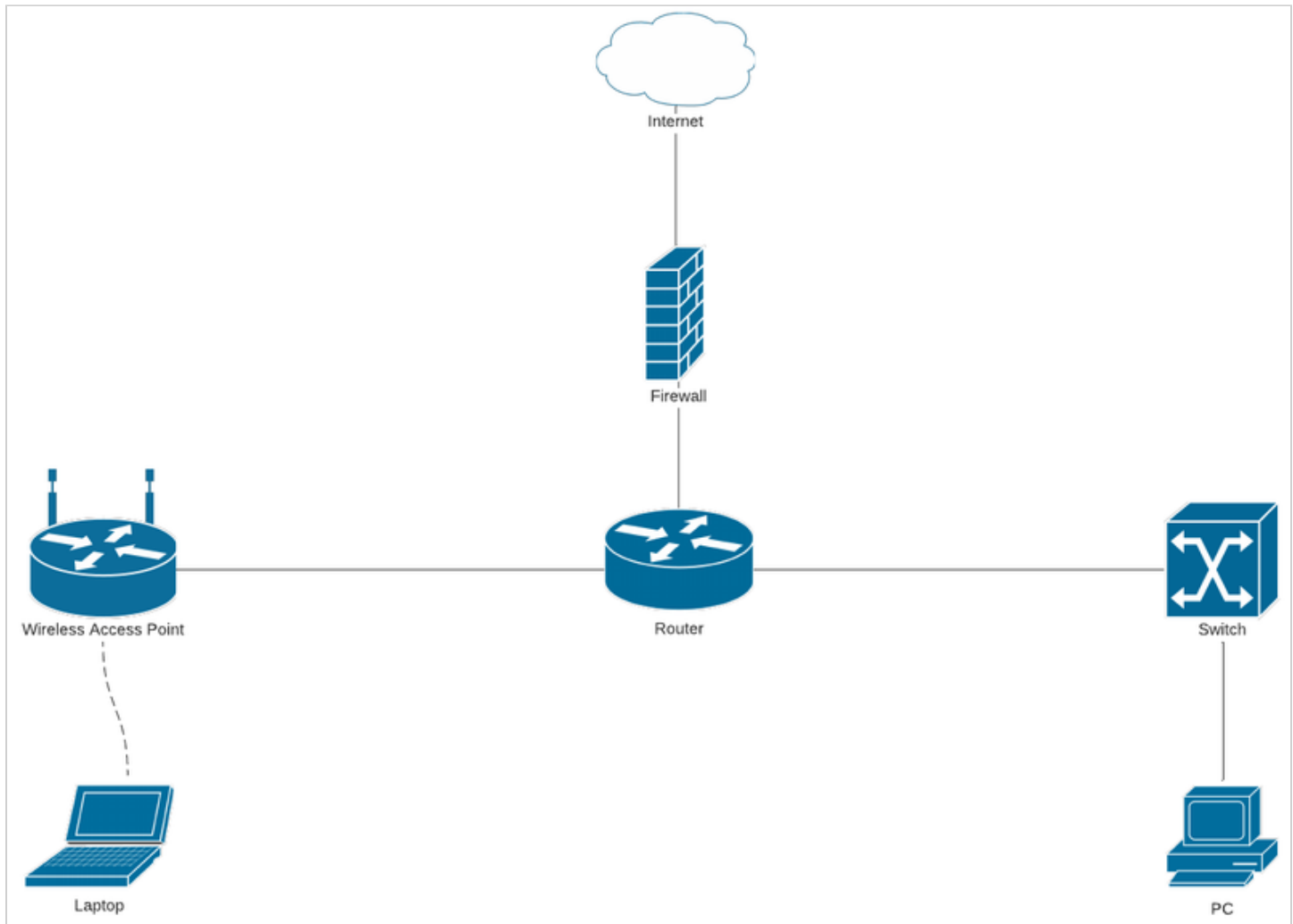
This simple network diagram uses standard symbols and connectors. Source: lucidchart.com.

Other examples include a network switch diagram ☑ and home network diagram ☑.

A project network diagram is used for process management to identify and organize tasks to achieve a desired outcome.

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                    ┌─────────────────┐
                    │     Report      │
                    │    Incident     │
                    └─────────────────┘
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                             ▼
                    ╱─────────────────╲
                   │  Incident Form    │
                   └───────────────────┘
   False Alarm                              More
                                         Information
                                           Needed
                        ⬡
                    Frontline
                   Assessment
                      Team
                                           More
   File Only                            Information
                                           Needed
                        ⬡
                    Department
                       Head

                        ⬡
                   Remediation/
                    Response
                      Team                 Solution
                                           Rejected
```

A key distinction between computer network and process management diagrams is that the former documents ongoing two-way communication processes while the latter has a defined endpoint.

What is network topology?

A network topology diagram is a subset of network diagrams that documents data flow organization. Each topology type has its own pros and cons and contributes to configuration management: setup costs, communication dependencies, and component failure impact.

Network Topology Types

1 Point to point
2 Bus
3 Ring
4 Star
5 Tree
6 Mesh
7 Hybrid
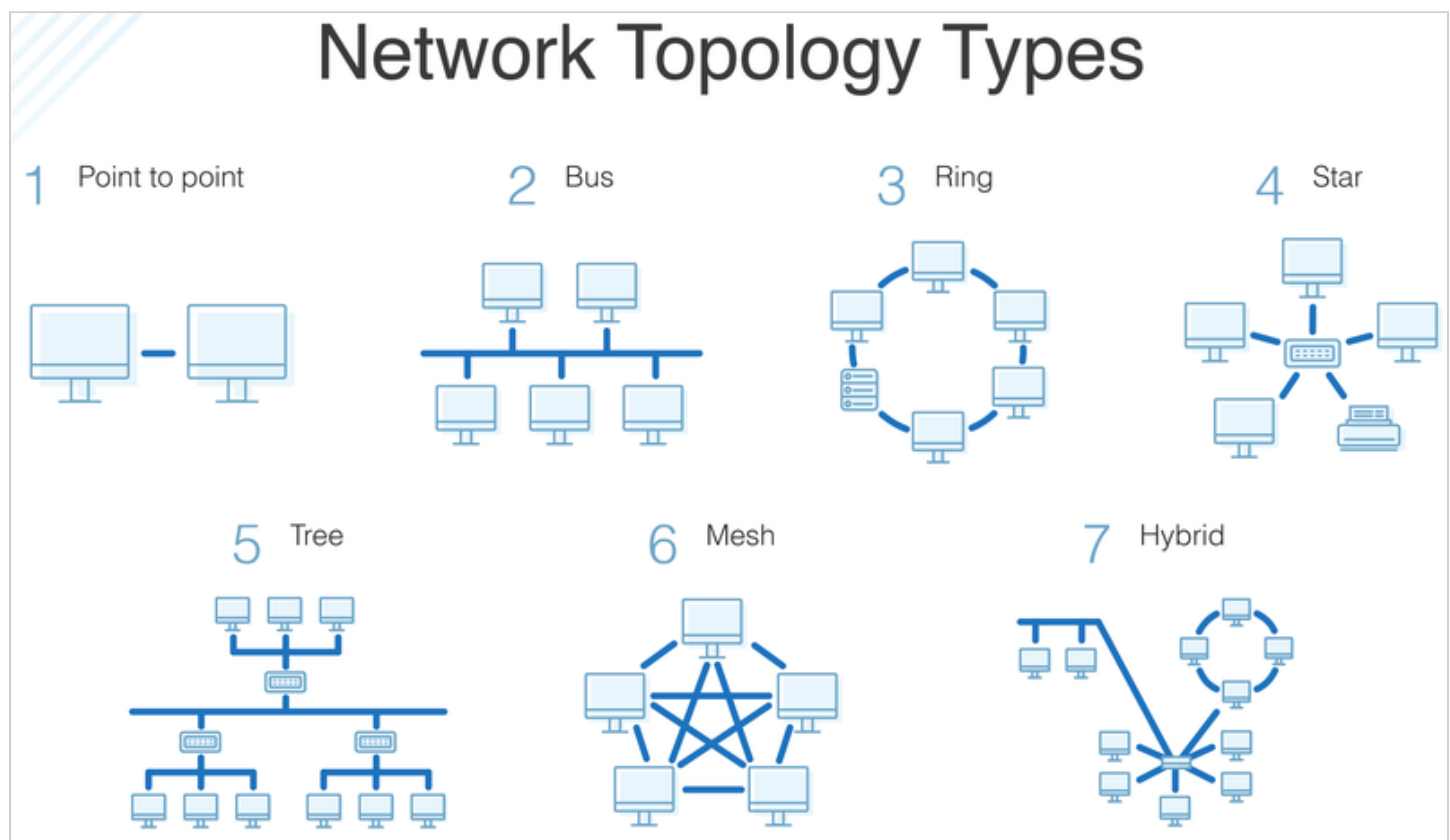
Network topology diagrams aid the computer network design process. Source: www.dnsstuff.com.

Information Technology Infrastructure Library (ITIL) processes, a collection of best practices for IT departments, provide in-depth guidance about network topologies and how to create network diagrams.

What are network diagrams used for?

Network diagrams have multiple uses, ranging from aiding the design process to ongoing regulatory compliance. These boil down to one bottom-line key performance indicator (KPI): reduced costs.

1. Network design

Computer network design has two elements: physical and logical. Using a physical network diagram helps optimize your floor plan to reduce cabling costs, provide maximum Wi-Fi connectivity, and ensure hardware security. Understanding the different logical network diagrams lets you choose a network topology that provides the best communication structure for your network while anticipating future expansion.

2. Incident response

Documenting your network's architecture before a critical event requiring incident management occurs is key. The last thing you want during any failure or service degradation is a debate in your IT department about what's connected where using which configurations. Network process diagrams also aid help desk agents with more routine service requests and ensure approved processes are used during change management.

3. Regulatory compliance

Your enterprise computer network doesn't exist in a vacuum. While network diagrams promote system stability, if your business has an e-commerce component, diagrams are a requirement under the Payment Card Industry Data Security Standard (PCI DSS). Network diagrams also help provide data security compliance with other regulations such as the Health Insurance Portability and Accountability Act (HIPAA).

How to make a network diagram

Creating or maintaining an accurate network diagram uses the same steps: initial research, diagram creation, outside review, distribution, and periodic updates.

1. Identify network elements

Opening a blank graphics file to stare at blankly hardly marks a productive first step to create a network diagram. Instead, conduct upfront research and collect necessary data to avoid looking for it as you go.

Elements to identify include:

- **Components:** List software and hardware such as firewalls, hubs, mainframes, routers, servers, and workstations.
- **Connections:** Group your components and define how they communicate with each other.
- **Locations:** Identify where hardware is physically placed.

For existing networks, the best IT management software can run reports to show connected hardware to get you started. If you're designing a new network, this information can inform your budgeting and installation processes.

2. Choose a diagramming application

Before you draw your diagram, select diagramming software. Sure, you can use a generic drawing application, but you're only making more work for yourself. Save time and avoid frustration by using desktop applications such as Microsoft's Visio or web-based options such as Lucidchart.

Benefits of specialized network diagramming software include:

- **Templates:** Most applications have preformatted templates for basic network topologies and home, local area, wide area, and other network types.
- **Symbols:** Use standardized hardware and software symbols for reading ease. Some applications also provide manufacturer-specific icons.

A robust network topology mapping application can automatically make updates and flag device issues in real time.

3. Solicit feedback

Even though one person is likely tasked with producing a network diagram, don't depend solely on their efforts to create the final version. Instead, once an initial draft is produced, share it with IT personnel and other stakeholders for input.

Use printouts of your diagram for feedback, so you can collate multiple comments, suggested changes, and other notes before updating the working network diagram file. If these changes require an increasingly granular view of your network, consider creating separate diagrams to illustrate different levels or areas of information.

4. Distribute diagram

Once you finalize your network diagram, distribute it throughout the company. Network diagrams serve multiple purposes — infrastructure planning and budgeting, regulatory compliance, incident management, and inventory control — if they're accessible.

Instead of using printouts as you did during the review process, provide diagrams electronically to prevent anyone from using an outdated version. It's also more accessible than residing in a three-ring binder on the top shelf in a locked storage closet when quick access is critical.

5. Update regularly

Your IT department continually updates, adds, moves, and replaces equipment and applications on your network. Your network diagrams are as useful as they are accurate, so keeping them up to date is critical.

Ideally, your network diagrams are updated every time your network changes. In reality, this may not happen. Again, IT management software helps out here: Run periodic reports checking the current network configuration versus existing network diagrams to make any necessary changes.

Put network diagrams to work for you

Any IT professional will tell you drawing network diagrams isn't high on the excitement scale. Then again, that's why it's called "work" and not "playtime." Creating these diagrams will, however, pay off during network design, installation, expansion, and incident response.

Teresa Kersten, an employee of LinkedIn, a Microsoft subsidiary, is a member of The Motley Fool's board of directors. The Motley Fool owns shares of and recommends Microsoft. The Motley Fool has a [disclosure policy](#).