



WHITE PAPER

HOW TENFOUR'S IT SERVICE ADDRESSES RETAILERS' UNIQUE CHALLENGES

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1. INTRODUCTION

Throughout TenFour's experience in the retail industry, we've encountered numerous retailers facing a similar set of challenges when delivering IT services to their store locations. These challenges typically fall into one (or several) of the following categories:

- Adaptability
- Geographic Constraints
- IT Resourcing

To help our retail customers overcome these challenges, TenFour has combined Cisco's technology platform with our rigorously tested, pre-configured technology templates, known as "Reference Architectures" (RA). By incorporating best practices and standardizing the technology used, our RAs help us deliver networking and communications solutions that quickly and efficiently address the unique technical, operational, and financial requirements of retail customers.

This white paper will expand upon the retail business challenges described above and demonstrate how the solutions TenFour offers address each through RA and our subscription service model.

2. PROBLEM STATEMENT

Multi-location retail businesses face numerous challenges when delivering IT services to their store locations. Due to the nature of the retail industry, each geographically diverse location's technology resources may be under-staffed, under-provisioned, and lacking in the expertise needed to support new initiatives and meet new customer demands. As a result, stores' core technology typically becomes severely outdated, impacting the location's performance and damaging the retailer's brand. Revitalization of the stores' IT infrastructure can reverse these trends with an infusion of secure, reliable technology and the staff to support and maintain it.

3. BACKGROUND

According to research conducted by Square (*see references*), 72% of business owners agree that retail businesses face more IT challenges today than five years ago. While it might not be possible to address every IT challenge experienced by retail chain businesses, several common challenges hamper most deployments. The problems TenFour typically encounters fit into three categories: Adaptability, Geographic Constraints, and IT Resourcing.

In regards to Adaptability, retail chains have more dynamic needs that can vary from one season to the next. Retailers require faster turn-around time for new location deployments and regular employee turnover demands standardized training programs for new employees to ensure staff are productive as soon as possible. As explained below, TenFour's Reference Architecture approach to core technology capabilities bypasses this complexity by delivering any required telecommunications services (such as internet and PSTN connectivity) in a consistent, reliable model that can be adapted to any location or employee base.

Similarly, geographic constraints often limit store locations' capacity for more advanced IT capabilities. A store's location is almost entirely driven by market demand, which creates constraints around choices of internet service providers, IT facilities (such as data centers), and in the options for routers, servers, switches, and additional hardware. Further, a store's location can affect its access to IT expertise. It may be difficult or impossible to find IT staff within reasonable distance of a store that's capable of addressing all of its needs, while sending IT resources onsite for troubleshooting is often time consuming and expensive.

These issues are compounded by challenges around IT resources, by which we mean a lack of staff and providers capable of installing complex hardware and software, including necessary cabling and rack

infrastructure for new locations. In addition to the “hands and feet” required for hardware installation and connection of relevant telecommunications services to a demarcation point, a longer-term challenge of device management remains. If no onsite staff is available, stores have little recourse in how they troubleshoot current technology or upgrade to more capable advanced technology.

Our solutions – built from Cisco technology and TenFour Reference Architecture – resolve these issues and more, so retailers can thrive no matter where they are or who they have on staff.

4. SOLUTION

As outlined above, TenFour is aware that retailers are facing complex, interlinked challenges that require simple and fast solutions. We have designed and delivered these solutions via the pre-configured technology templates we call “Reference Architecture.” Below, we’ll explain how these version-controlled, consistently updated, and consistently refined configurations work to build a powerful foundation for retailers’ IT infrastructure.

First, we address the challenge of adaptability by simplifying the technology we provide. Our Reference Architecture template configurations are deployed using either Cisco “Plug and Play” (PnP) technologies or Meraki technologies, both of which are designed to minimize the need for technical expertise or onsite attention. This provides a “zero touch” deployment method that enables TenFour to deliver network equipment, such as routers, switches, etc., directly to retail locations, removing logistical challenges and saving time and money.

Given the prevalence of modern cyber threats to retailers, security is top of mind when selecting the technology that comprises our solutions. Security on each of the devices we deploy is assured using SSL secure delivery and all configuration information is transmitted securely from end to end.

The diagram below shows the steps involved in the PnP delivery mechanism:

1. DNA Center is provided with template device configurations for different types of devices to be deployed to customer networks and updated with appropriate device details (such as serial numbers) to ensure the device is delivered in the correct template configuration.
2. When first powered on, the Cisco equipment deployed to the retail location uses its built-in PnP agent to perform a secure discovery of a PnP policy server.
3. Once a PnP policy server is discovered and verified, the PnP protocol is used over HTTPS to deliver a secure configuration file to the network device.
4. The device is then registered to the PnP connect cloud to verify appropriate licensing with cisco, apply these licenses and register the device under a Cisco.com account for SmartNet support.

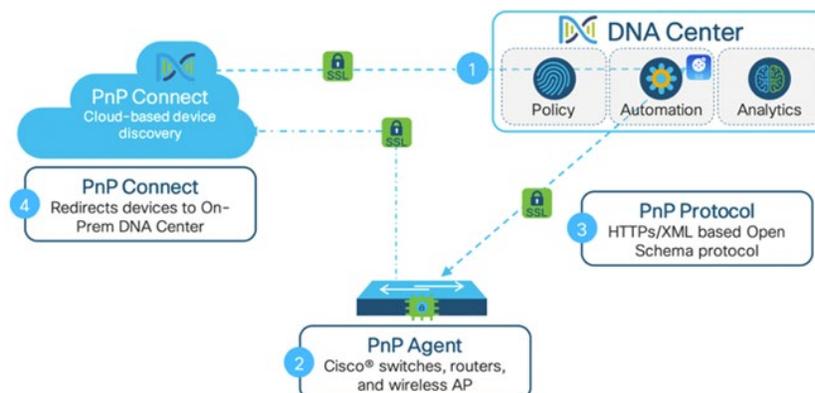


Figure 1 – Cisco PNP Delivery Mechanism

The diagram above demonstrates the challenges of provisioning IT resources. TenFour overcomes this challenge as an “Active Reseller” for AT&T and other telecommunications providers. Internet or Private (MPLS) network connectivity is ordered and provisioned entirely by TenFour on the retailer’s behalf using cable, fiber or cellular depending on the connectivity requirements specified by the retailer and the available point of presence. Optionally, TenFour can also provide PSTN connection for retail customers deploying our Unified Communications offering with Cisco Communications Manager.

The challenge of retaining onsite staff is addressed as part of a “turnkey” turn up of the technology and services we provide. Devices are shipped directly to the retailer’s store and met onsite by our dedicated cabling and installation team. This team then follows step-by-step, proprietary “runbooks” for each piece of hardware technology provided to successfully rack, install, power on, invoke the automated provisioning system, and confirm connectivity and monitoring with TenFour’s 24x7x365 Network Observation Center (NOC).

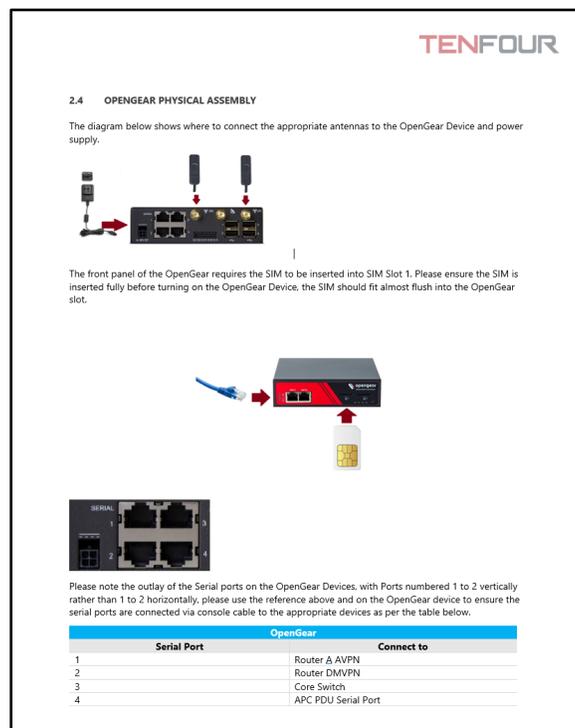


Figure 2 – Sample of a TenFour Runbook

Once the turnkey network service is fully provisioned, the challenge of long-term management of these remote devices remains. TenFour resolves this through the use of OpenGear Out of Band (OOB) management devices. These devices provide serial port connectivity and USB connectivity via a dedicated 4G cellular connection.



Figure 3 – An OpenGear OOB Device

But although the OpenGear OOB devices provide management access for networked devices in the event that Secure Shell Host (SSH) or other management protocols are unavailable, devices might be unresponsive or might fail during a firmware upgrade and fail to start correctly. To address this, TenFour provides smart Power Delivery Units (PDUs), which provide the TenFour NOC with the ability to remotely power devices on and off as needed.



Figure 4 – APC Smart PDU

All of these elements of TenFour’s approach to providing technology, maintenance, and support combine to overcome the geographic constraints any store location might face. By incorporating the challenges into the Reference Architecture designs behind every solution, they are more adaptive and resilient than solutions provisioned by the retailer on their own. And because of the nature of our solutions, they are easily configured to be deployed anywhere and sized to any layout.

5. CONCLUSION

While every retail business is unique and has its own challenges and priorities, reliable IT infrastructure is critical to their operation. From phones and communications technologies to point of sale devices and in-store wireless, core elements of retailers’ ability to conduct business depends on technology, including its implementation, maintenance, and support.

By combining TenFour’s expertise and experience with Cisco’s technology platform, TenFour has designed and developed a Reference Architecture methodology that provides a turnkey network as a service solution to any store, no matter where it’s located or what resources they have available. Retail chains that engage TenFour to provision and maintain these essential IT services free up their in-house resources to focus less on the constraints and complexity of their IT infrastructure and more on the projects and innovations that create true business value.

6. REFERENCES

“Zero to One Device Provisioning and Discovery with PnP Connect”

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“TenFour RA OOB & PDU Runbook v1.2”

<https://allianttechnologiesllc.box.com/s/9le27e3r469z2zdh2ouv9ab1lkfdg1ys>

Square – Business challenge survey

<https://squareup.com/us/en/l/heart-and-hustle>