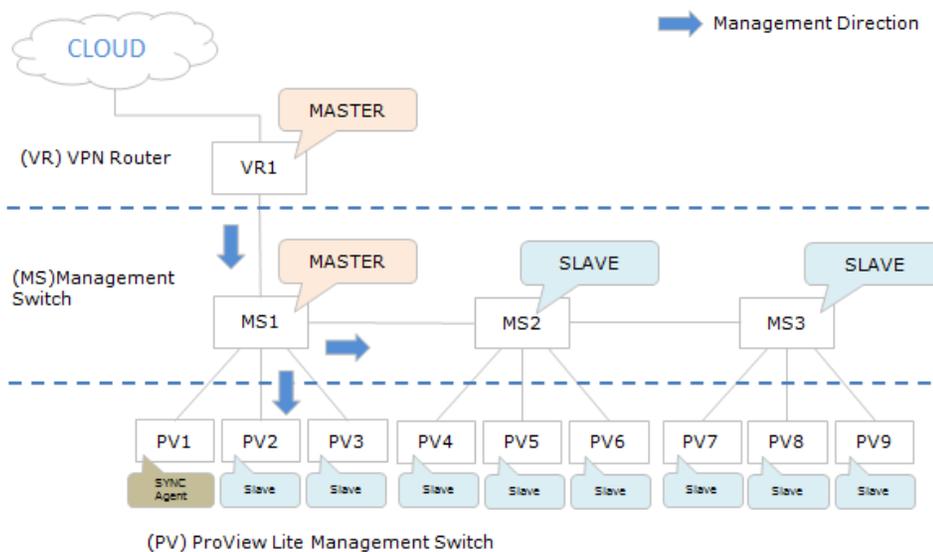# Advantech IXM Technology, the Master to Network Deployment

● What is Advantech IXM Technology?

In traditional networking management, it takes a lot of time to configure each network device with duplicate settings, as well as perform firmware synchronization. If after deployment, an issue appears without an obvious method of solving it can quickly affect the efficiency of the network.

Advantech IXM technology is a base protocol specifically designed for most EKI devices. Its design approach was based on the knowledge that devices negotiate with each other for specific purpose. With this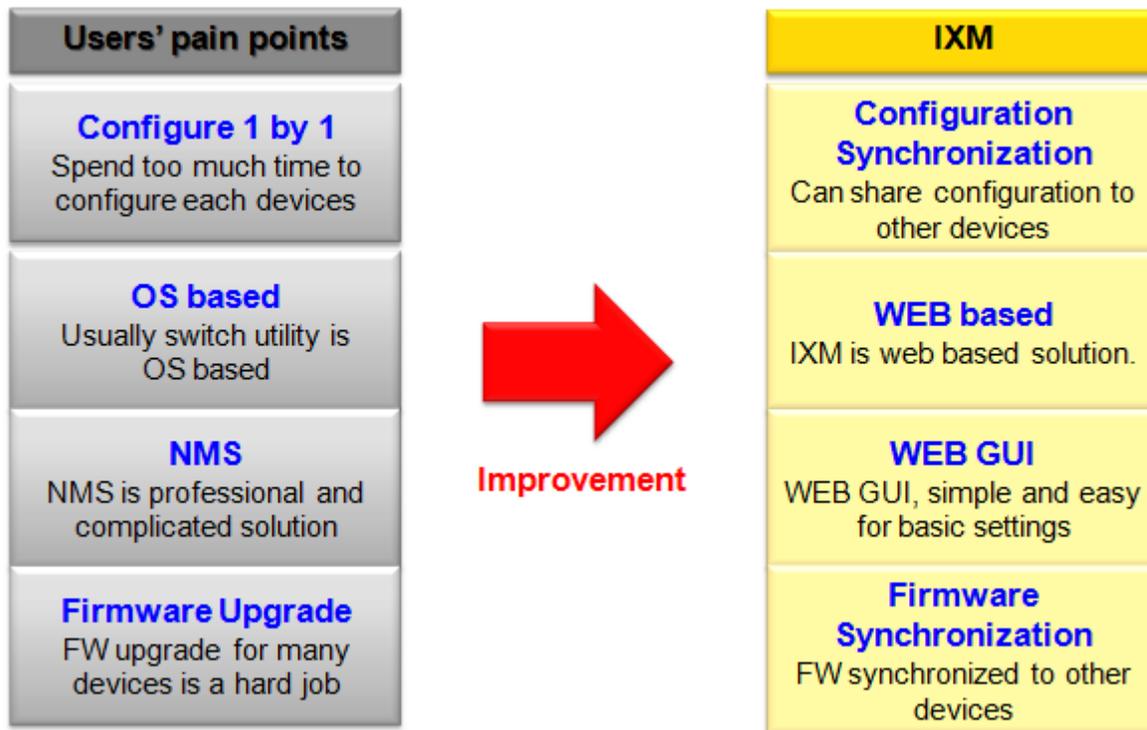 in mind, two directions were defined to implement IXM: *Synchronization* and *Supervision*. It also benefits different phases of device deployment: Installation and Maintenance. IXM partially accomplishes the concept of IOT, which is allowed to control everything remotely and utilizes BIG DATA collected from other network devices. IXM fulfills the expectations that we applied to the network: simple, quick installation and operation reliability.

Graphics 1: IXM Topology

● **How Advantech IXM Technology Benefits at Setting?**

Users' pain points	IXM
Configure 1 by 1 Spend too much time to configure each devices	**Configuration Synchronization** Can share configuration to other devices
OS based Usually switch utility is OS based	**WEB based** IXM is web based solution.
NMS NMS is professional and complicated solution	**WEB GUI** WEB GUI, simple and easy for basic settings
Firmware Upgrade FW upgrade for many devices is a hard job	**Firmware Synchronization** FW synchronized to other devices

Improvement →

Graphics 2: Advantages IXM Technology Offers at Setting

1. Current Situation of Firmware and Software Upgrade and Configuration

In an IT network, administrators need to configure each device based on their knowledge. With several devices this isn't usually an issue but with tens of switches it's a time consuming and challenging task. There are, of course, software utilities which can help with this, but these are installed on a PC which needs to be connected directly to the switch. Each time there is a software or firmware upgrade the computer needs to be connected once again. This isn't ideal. So how about using a NMS (Network Management System)? Compared to the utility software, NMS runs on the concept of central management and is designed to rapidly deploy anything on any device which can be

discovered. But it's still a server-based solution and that means that an extra server-level device is needed, therefore increasing the cost.

2. New Way to Firmware and Software Upgrade and configuration with Advantech IXM technology

Based on the above information, a better solution which should be portable and easy to install is proposed. It's also better if its embedded in network devices without extra cost, and is quite easy to use.

Advantech IXM technology fulfils these requirements with the following advantages:

(1) *Portable.*

(2) *Embedded in network device.*

(3) *Upgrade with firmware.*

(4) *No extra cost.*

(5) *Easy to use.*

(6) *Quick for deployment and troubleshooting.*

Usually, a fixed configuration is provided to establish a closed topology. For the purposes of stability the configuration of each device is static. IXM allows the assignment of a fixed range of IP address to many devices at the same time, which is often the first benefit for an administrator. Without IXM, administrators have to install the network utility first, and then check there are no extra issues like operating system dependence or revision issues.
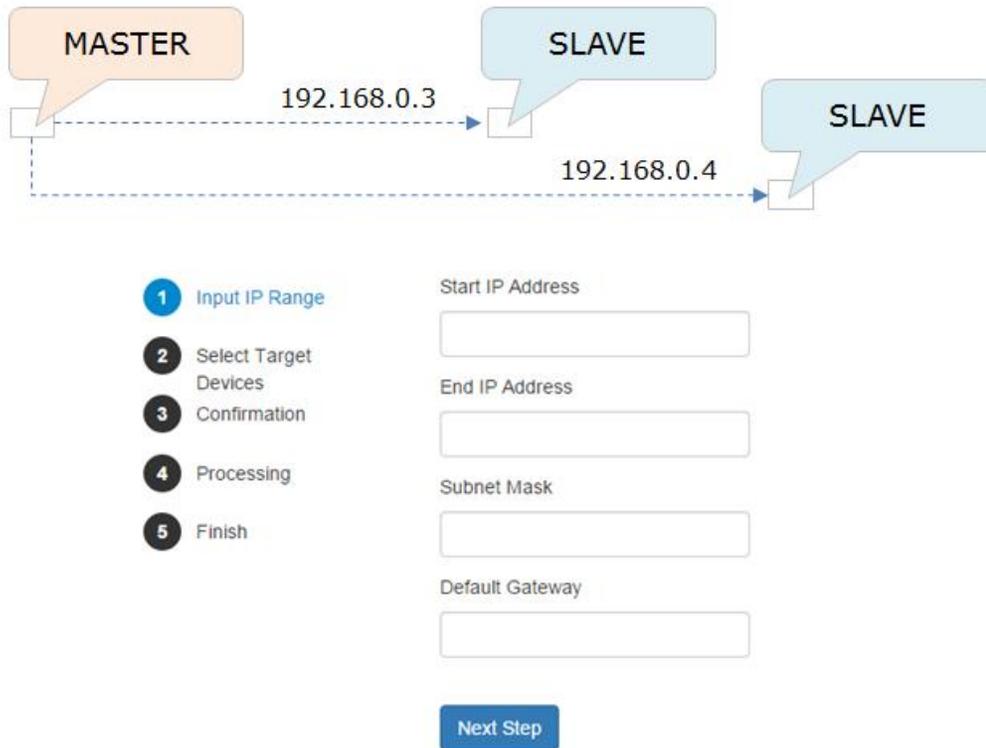
Graphics 3: IP Range Assignment

After assigning IP addresses, the administrator may need to deploy a fixed configuration to each device individually. It takes a lot of time and cannot be avoided. With IXM supported devices, the administrator can copy the configuration from one device to the others. The only limitation is that all devices joined the synchronization process should be the same series and model.
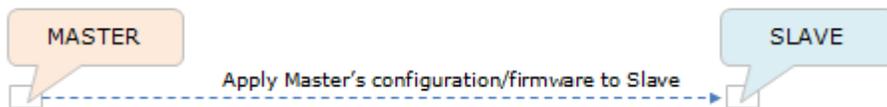
Graphics 4: Master applies its firmware to Slave
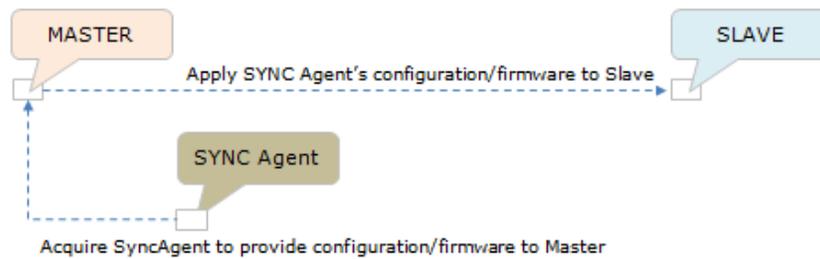
Graphics 5: Master asks SyncAgent to provide configuration/firmware, and then apply to Slave

3. Here are the main benefits IXM Offers

(1) Time-Saving
The SYNC mode, allows the synchronization of device configurations and firmware from one to many. A batch process is performed automatically with the press of a button and saves a great deal of installation time.

In the SUPERV mode, it monitors the status of many devices, utilization and statistics at the same time. All useful RAW data is collected by the supervisor which provides an informative, friendly dashboard to the administrator. That will save much time when having to perform unexpected troubleshooting or routine maintenance.

According to the lab testing taken in Advantech, the configuration time is 90% reduced.

(2) Simplicity
Either SYNC or SUPERV mode, a step-by-step wizard will lead the administrator to complete all operations in the installation and maintenance phase.

(3) Mobility and Flexibility
IXM is designed in a standard LINUX daemon, which can easily be installed in any embedded LINUX device.

4. Advantech IXM technology enables easier configuration synchronization

IXM also allows the synchronization of either its own configuration or any device's configuration to the others. It will not restrict the administrator's use of IXM on a specific device due to the source of configuration chosen.

IXM is easily understood since works in the same manner as synchronizing an iPhone or iPad with iTunes. Therefore deployment is quicker, easier and more efficient. It chiefly benefits the administrator (or service provider) for the quick establishment of a network topology. Also the establishment of a distinct device list can be achieved by pressing the "Scan" button, which obtains the system information and important function parameters of each device.

5. Firmware synchronization Becomes Efficient with IXM Technology

Another benefit of the deployment is firmware synchronization. Choose the firmware location and the target devices and then perform the firmware upgrade. Without countlessly-revising utilities and a clunky NMS, IXM accomplishes the quick installation of any topology, especially for a messy combination of network devices.

● **In Short, how Advantech IXM Technology Improves Efficiency**

IXM chiefly benefits administrators who perform network installation and maintenance. It does more than a utility and a little less than a NMS, but the main advantage is that it's embedded in the switches firmware, allows upgrades at any time, and is independent from operating systems or physical server devices. Advantech is about to release a series of Managed Ethernet Switches embedded with this cutting edge technology- IXM.