1. Choosing the best option for deploying Local Management

Uplogix automates numerous network support, maintenance, configuration and recovery procedures reducing the time, cost and error associated with manual support. Depending on user requirements, Local Management can be deployed through dedicated Uplogix hardware or virtually on a VM hypervisor in combination with a hardware module or console server.

Cost, installed-base, topology, security and timelines should be considered when deciding how to implement local management. All methods deliver similar functionality and maintain local management with varying dependence on the network to transport the monitoring, decision-making and actions.

2. Purpose-built Local Managers

Uplogix Local Managers (LMs) are dedicated hardware to host the Uplogix Local Management solution. LMs come in a variety of form factors and options that are designed to meet the needs of most customer environments. Figure 1 below illustrates how an LM would be deployed in a typical environment.
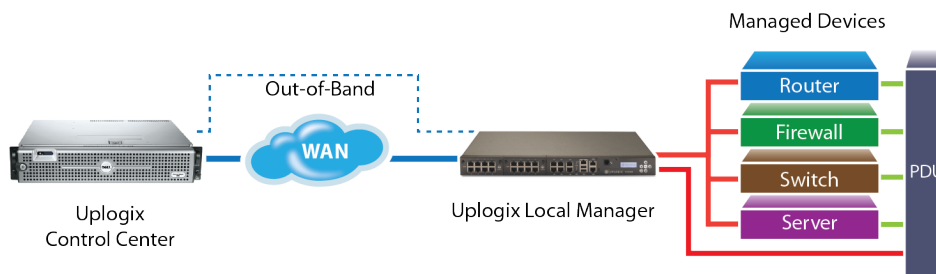

Figure 1: Typical Uplogix Local Manager Deployment

Using Uplogix dedicated hardware includes the following advantages:

2.1. Internal bus console ports

Processor bus connected serial ports provide the most robust and efficiently serviced input/output queues and buffers. The systems use high speed PCI connected UARTS for the most reliable continuous data collection and task execution.

2.2. High performance I/O

Uplogix LMs are optimized for high frequency continuous data storage and analysis. The architecture is focused on efficiency in disk I/O and memory necessary in a sophisticated decision support system.

2.3. Optimized form factor

From the 4 port to the 38 port models, the purpose-built devices are designed for customer networking environments. Dual power supplies, preconfigured ports for modems and power controllers, and front panel display with keypad provide the robustness expected in top tier network devices.

2.4. Dedicated Ethernet for each device

From transferring files to tunneling management user interfaces, dedicated Ethernet (available in the Uplogix 5000 model), extends the same low level network independent communications available for serial to a dedicated Ethernet cable for each device.

3. Virtual Local Managers

In addition to a dedicated hardware platform, Uplogix has optimized its Local Management software for KVM or the VMware ESXi platform. These virtual LMs can utilize directly connected console servers, network attached console servers, or locally attached serial ports for management of end devices. Virtual deployments include these advantages:

3.1. Shared hosting

Multiple LMs and other applications can be hosted on the same hypervisor reducing cost and physical footprint of automated network management. Additionally, fault tolerance can be achieved using virtual machine failover.

3.2. Directly connected to a USB attached module

With supported USB attached to 1, 2 or 4 port modules, the hypervisor running the virtual LM can utilize up to 3 modules yielding a maximum of 12 total hardware serial ports per LM instance.
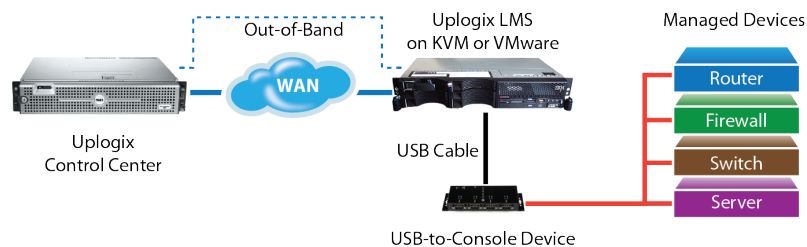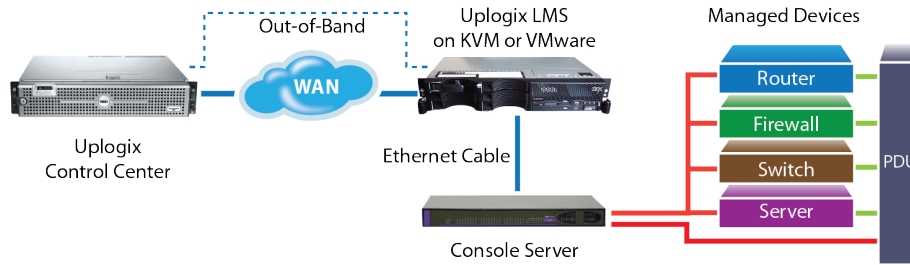

Figure 2: Typical Virtual Local Manager Deployment using USB-to-Serial Connection

3.3. Utilize current or commonly available console servers

All relevant functionality available in the Uplogix LM is available using a virtual server hypervisor from VMware and console servers supporting serial over telnet (RFC-2217). When connected using a dedicated console connection, the functionality is very similar to the purpose built local manager and may be considered for any applications that have ESXi and console servers deployed.

3.3.1. Directly connected to console servers

The console server Ethernet should be cable connected to the ESXi hypervisor to achieve optimum performance and security. Multiple Ethernet ports are often available on ESXi hosts and can be configured as a dedicated connection for each console server. Up to 48 ports per virtual local manager can be configured. Figure 2 below shows the physical layout of this option.

Figure 3: Typical Virtual Local Manager Deployment Using a Console Server

3.3.2. Local Managers via Virtual Port Connections

Up to 16 Virtual Port connections can be used by a Local Manager to "front end" terminal servers over an Ethernet link or over a private VLAN. Using a private VLAN brings benefits and potential risks. Other networking components implemented between the Local Manager and the console server can overcome cabling challenges (for example distance or utilizing existing cabling), but also brings a potential point of failure to the management communication between the LM and the console server. See figure 5 below.
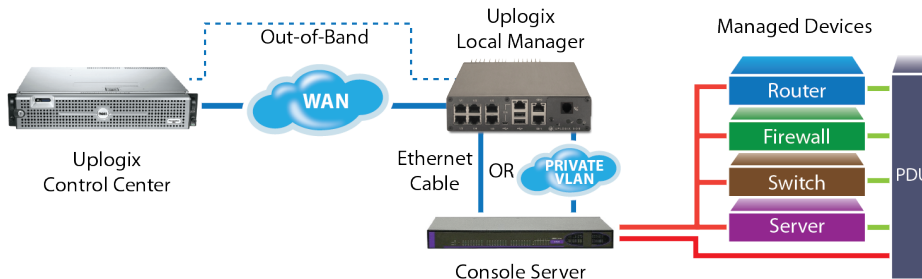
Figure 5: Local Manager Managing Existing Console Server Deployment

Serial over Telnet protocol (RFC 2217) is unencrypted, and while not a security issue when using a dedicated cable between Uplogix and console server (Figure 2), if a shared network is used, SSH is recommended.

Additionally, console servers generally allow only one connection to each console port. If the console server is using routable IP addressing, another user or application may connect to the console port before the Uplogix LM and interrupt management traffic. Access control lists on the console server may be able to mitigate this issue.

3.4.   Rapid deployment and failover

Utilizing current infrastructure hypervisors and console servers decreases the roll-out time of the Uplogix local management platform. Additionally, hypervisor-based fault tolerance such as failover may be used to mitigate VM failure.