



The TCO benefits of the Dell PAN System

1. **CPU count reduction:** The reduction in CPU count results in a lower CAPX and annual maintenance cost for server hardware. A lower CPU count reduces the software licensing, power, and cooling costs for the configuration (OS, application, management, etc.)
2. **Consolidated I/O:** The Dell PAN System eliminates up to 80% of the network and SAN ports, dramatically reducing the datacenter infrastructure required to support the application environment. The Dell PAN System's bladed form factor reduces the footprint within the datacenter to support the application.
3. **Simplified systems management:** The Dell PAN System simplifies the management of the application environment since it reduces overall complexity while creating a flexible and scalable environment. As a result administration tasks are greatly reduced, including a reduction in configuration labor costs by over 85%.

CPU Count Reduction

The Dell PAN System architecture can repurpose servers when needed, as needed (on the fly). This reduces the need to have servers:

- Configured as passive standby servers or overly clustered active machines. This capability eliminates the need for servers that were provisioning for high availability.
- Sitting idle in a DR mode and not used for development or QA environments. One DR machine can serve as backup to a production server at different production datacenters (N+1 DR).
- Dedicated development or UAT servers (or the ability to pool compute resources within or between applications). By sharing development, UAT, or other computing resources across applications, studies have shown reductions of up to 40% in server count.
- Tied to each application (one application for one server). The Dell PAN System integrates the management of hypervisors, allowing administrators to manage physical and virtual servers in the same way from a single pane of glass.

. The reduction in server count has a significant impact on operational expenses, including:

- **Hardware and Software Maintenance:** The Dell PAN System reduces the number of servers as well as software images that need to be maintained, upgraded and repaired.
- **Power and Cooling Costs:** By deploying fewer servers, the Dell PAN System reduces the number of processors (which consume the majority of power required by a server) required to support an application.
- **Real Estate:** The Dell PAN System reduces the number of rack units and floor tiles required



Consolidated I/O

The Dell PAN System consolidates the redundant I/O for all 16 processing blades through 10 network and 4 SAN connections, consolidates power into eight cords, and eliminates KVM connections.

Therefore, the Dell PAN System requires significantly less supporting datacenter infrastructure, including:

- Fewer switches (internal SAN, internal network)
- Fewer ports (SAN, network, KVM)
- Fewer cables (SAN, network, power)
- Fewer HBAs, fewer NICs

The cost savings for the associated reduction in network infrastructure is significant when factoring in the cost of NICs, HBAs, cables, and datacenter switch ports.

Simplified System Management

The Dell PAN System's virtualization of the network components and datacenter infrastructure enables systems administrators to manage systems more effectively and efficiently. The Dell PAN System provides a system management platform that impacts the following network and system administration activities:

- **Configuration Labor:** In the Dell PAN System architecture, the SAN and LAN are only provisioned to the frame and configured to the PAN Controller (Control Blade) once. Up to 16 physical servers can be provisioned without repeating this business process.
- **Break/Fix Labor:** The Dell PAN System dramatically reduces complexity in the datacenter – fewer parts result in higher availability and reliability. Dell PAN System blades are hot swappable, requiring zero I/O configuration, since pre-defined server images assume the same network configurations regardless of the hardware resource.
- **DR Test Labor:** The Dell PAN System provides for verifiable DR; therefore, the DR servers are guaranteed to perform the same as in production. The Dell PAN System eliminates time spent maintaining DR environments (hardware, software, network configurations) with legacy server architectures.
- **OS Labor:** The Dell PAN System reduces the number of OS images that are required to support an application(s), eliminating dedicated servers for HA or DR. OS changes are easily replicated in the Dell PAN System since servers are software defined.
- **Upgrade Labor:** The Dell PAN System provides verifiable server definitions that can be replicated for each of the servers within the application. The upgrade process is simplified by the Dell PAN System architecture. The Dell PAN System increases application availability since the application server definition can be upgraded without taking down the production server. The only downtime is the time required to reboot the new server.
- **Network/SAN Port Management:** The Dell PAN System's consolidation of the I/O reduces the operational expenses associated with managing, maintaining, repairing, and upgrading network/SAN switches.