IBM Integrated Server Farm (ISF)

TSS HW Services
Data Centre Trends

- The density of computing power in a data centre environment has steadily increased in recent years. This trend is driven by Blade Server technology and the virtualisation of servers and storage technology.

- As organisations optimise the use of their IT systems as part of the trend towards virtualisation and Blade Centre environments, the ROI of existing IT rooms can be maximised and in some cases data centres can be consolidated.

- Virtualisation and high density computing however also creates a set of challenges:
  - The heat output per u-size can increase by 40% - 60%
  - Air conditioning and cooling requirements will need to be reassessed.
  - Adequate power protection will need to be provided for the IT systems (typically higher power consumption than traditional systems).
  - Cabling of servers and storage devices is likely to be more complex.
  - Management and maintenance of the increased number of servers can be challenging.
Traditional Server Farms

- Every traditional server farm requires a specific system of underfloor cabling to provide data and power cabling. Typically data and power cabling need to be separated to minimise interference.

- Complex cable labelling and management due to the number of cables.

- Cabling, power, cooling and management need to be considered at the planning stage for a new server farm.

- The result is a lack of flexibility and scalability.

- Costs for management and maintenance are high.

- Significant risks are associated with the planning and implementation of new server farms.
IBM’s Integrated Server Farm

- The IBM Integrated Server farm solution consists of a row of 19 inch racks hosting the servers and the necessary services to connect those servers to the infrastructure.

- **Servers:**
  - 1u (up to 256 servers) to 5u size
  - Mix of rack-mounted and non-rack mounted servers
  - 1 to 9 network interface cards per server
  - 1 to 4 power supplies

- **Associated Services:**
  - First level LAN connection
  - Keyboard-Video-Mouse (KVM)
  - Power Distribution
  - Cabling Systems
Benefits – Improved Availability and Resilience

- **Improved venting and airflow system**
  - Better cooling of server and storage devices
  - Works in conjunction with traditional aircon systems

- **Multiple redundant and managed power outlets**
  - 1 to 4 outlets per server
  - Local power distribution modules
  - Colour coding for ease of installation
Benefits – Scalability and Flexibility

- **Ready for all types of servers**
  - Single concept for rack-mounted and non rack-mounted servers
  - Simplified reconfiguration and addition of new servers for fast upgrades

- **Rapid Installation / Simple Upgrade**
  - All connectivity (network and power) integrated inside the rack
  - No special floor preparation required, other than for basic installation planning activity for other large systems or storage devices
Benefits – Simplified Management

- **Integrated Cabling**
  - Short connection distances
  - Colour coded
  - Reduced risk of human error

- **Integrated KVM**
  - Integrated Keyboard-Video-Mouse switch for local and remote access
Benefits – Higher Server Density

- **Improved Space Utilisation**
  - Integrated power and data cabling results in 15% to 25% improvement in space utilisation.
  - All 19 inches of the rack can be utilised.

- **The Integrated Server Farm solution reduces the Total Cost of Ownership (TCO) and delivers a higher Return Of Investment to IBM customers.**
More Information

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