



IP network solutions for Data Center

Improving business responsiveness

Data Center roles and trends

The Data Center, the “brain” of the IT&C system, is the entity that aggregates most of the computing, storage and software resources of the enterprise. Those resources are interconnected and accessed by the users on a high availability network infrastructure.

Applications commonly stand alone in underutilized, isolated environments. Each application is optimized for performance, and a typical data center supports several operating systems, computing platforms, and storage systems.

The disparate infrastructures supporting different application “islands” are difficult to change and expensive to manage, integrate, secure, and back up. In order to address these problems, the consolidation of data center facilities has been a key industry trend, enabling enterprises to centralize resources and improve service levels to the business while decreasing ownership costs.

Given the increased reliance on a centralized data center, the stakes associated with disruptions are higher than ever.

As a result, it has become vital that the data center be architected to ensure users have reliable and secure access to corporate services housed within the data center.

Another key trend affecting the enterprise and data center network is the movement toward the virtualization of services. Virtualization allows for much of the functionality previously delivered through point products to be delivered within the context of a single-network framework.

Functions of the Data Center network

The internal data center network must provide a highly resilient structure to enable scalable, high-performance server interconnection, as well as the virtualization of computing, storage, and application resources.

A properly planned data center network protects application and data integrity, optimizes application availability and performance, and provides adaptability to business priorities. The main characteristics of this network include connectivity, performance, security and resiliency.

Establishing a business continuity framework

Every enterprise needs to determine the appropriate level of availability of its Data Center resources in order to satisfy its business requirements. The business continuity framework addresses this problem.

In order to elaborate a business continuity framework, the business should analyze and rank applications based on their hourly cost impact in the case of a data center outage.

When building a high-availability data center, it is more important to focus on the applications that have the greatest short-term impact on cost. Once the most critical applications have been identified, the data center architects should design the infrastructure providing the required level of availability.

The alternatives to insure a business continuity framework ranges from continuous availability architectures to best effort disaster recovery framework. The continuous availability architectures include two hot Data Center fewer than 80 km apart, including synchronous replication to ensure zero data loss in case of disaster.

A best effort disaster recovery framework includes weekly backups kept off-site, with incremental backups kept locally and off-site. Resuming the functionality of the business critical applications in this scenario will take about one week and the data since the last incremental backup will be lost.

At the network level, for the ultimate level of availability, a data center could deploy completely parallel internal networks with dual homing into each server resource. More appropriate for most data centers would be redundant network components (e.g., routing switches, firewalls, load balancers), each with redundant subcomponents, that operate over the single network. One step lower in availability would be a single network and single components, but with each component having internal redundancy such as dual power supplies, dual management modules, and dual fans.

The design team shall determine the optimal network architecture matching business continuity and all connectivity, performance and security requirements.



Network Solutions provided by Datanet Systems

High performance network connectivity

The IP network infrastructure delivers user access to the broad range of applications and services in the data center and enables high-speed communications between server tiers, clustered computing resources and applications.

Another important part of the network infrastructure is the data center interconnect network. Data center interconnections include campus, metro or WAN infrastructures.

The ability to provide highspeed, low-latency data center interconnections is critical to business continuance as enterprises consolidate smaller data centers into larger ones.

Datanet Systems offers data center managers an complete IP network infrastructure with intelligent switching capabilities based on the 7-year experience gained in very demanding environments such as Air Traffic Control, Telecom Service Provider and Banking and Financial Industries.

Network security

The Data Center implementation shall include security strategies, technologies, and products designed to prevent or contain attacks from both within and without the enterprise.

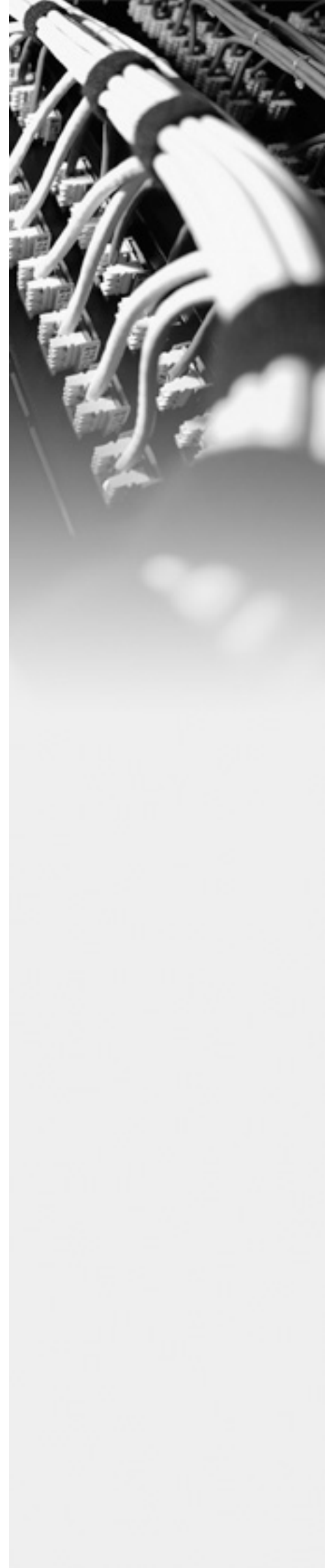
These strategies are based on the principle of defense in depth, which delivers multilayer security throughout the IP, storage, and interconnection networks. Datanet Systems solutions consisting in security products and services enable consistent security policy enforcement spanning trust and identity control, secure access, and threat defense.

Optimized delivery

Delivery optimization services are an integral part of the Datanet Systems data center network infrastructure solutions. Working together as a system, delivery optimization services can transparently respond to changing application loads or service disruptions. Its intelligence protects user sessions during planned and unplanned downtime.

It optimizes server resources through load balancing and offloading routine functions, preserving valuable server cycles for dynamic, complex transaction processing.

It supports business growth through smooth application and server farm scalability. It optimizes WAN usage and helps centralizing storage resources.



High availability

Business operations today require data centers to have maximum uptime. Data center managers cannot achieve availability through simple redundancy or resilience features.

Availability is the result of a life-cycle approach to the network infrastructure. Human error is the most common cause of downtime; therefore, it is vital to implement at the same time the best technologies and the best practices in network operations and management to realize business continuance.

Datanet Systems data center network infrastructure solutions offers the following features:

- ⇒ **High availability network infrastructure** - Datanet Systems, as a Cisco Systems Gold Partner, delivers highly reliable switches and routers with advanced resiliency features.
- ⇒ **Real-world network design** - Drawing from 7 years experience with very demanding customers, such as Air Traffic Control and Banking Industry, Datanet Systems provides proven high availability design guidelines for data center networking.
- ⇒ **Realigned network operations** - Network availability is limited by change, configuration, and fault management. Datanet Systems professional services team including Cisco Certified Internetwork Experts and certified ISO 17799 auditors help you define the most appropriate combination of element/fault management platforms and network operations procedures in order to obtain the desired data center network infrastructure availability.
- ⇒ **Expertise, service, and support** - Access to knowledge bases and experts is critical to quickly troubleshooting issues and rapidly restoring service. The technical team of Datanet Systems including CCIE, CCDP, CCNP, CCIP, CCSI, MCSE and ISO 17799 certified specialists offers expert-level professional services and rapid response support services.
Currently, Datanet Systems services have been chosen by most of the major banks and telecom service providers in Romania.

Datanet Systems network solutions for Data Center consists in latest technology products complemented by 7-year experience in some of the largest networks in Romania.

Datanet Systems professional services including design, implementation, training, support and optimization provides to our customers the benefits of rapid adoption of new technologies and responsiveness to changing market conditions.

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