



Network infrastructure design v1

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Introduction

The era of new technologies has provided practically unlimited possibilities of communication, regardless of place and time. Today, it is already hard to imagine a dynamically developing company without the support of modern technologies. Systems, applications and IT services effectively support our business, improving the efficiency, thus reducing the costs of operations. Along with the increasing importance of IT technologies in business, the principle of the weakest link in the case of IT systems is gaining particular significance. IT system is a complex environment of elements depending on one another. In order for it to play its part in 100%, it must be built on solid foundations which will allow to use it effectively.

Convergence of network services

The trend of convergence of networks and services, as well as integration of applications with IP protocol have caused significant growth in the significance of network infrastructure for the purpose of optimal transmission of various types of data. Convergent network infrastructure should today support simultaneous transmission of critical business applications (e.g. transaction database systems, data repositories, e-mail), interactive data transmission (unified messages, IP telephony, video and video conferences), as well as transmissions of large quantities of backup data.

Network infrastructure design

When designing convergent network infrastructure for our customers, we take into account 6 major factors. Infrastructure should be:

- Functional – meeting business expectations
- Scalable – enabling easy expansion at low financial expenses
- Available – presenting constant network activity 24/7, 365 days a year
- Efficient – performing optimal data transmission
- Manageable – ensuring control of efficiency and detection of breakdowns, as well as simple management
- Economically effective – ensuring availability of services, while maintaining low operating costs

Network services

Network infrastructure should be a reflection of the specific nature of your business, focused on applications and services operating in it. The possibilities offered by the whole IT system are directly dependent on services offered by the network, therefore such an important role in building a complex system is played by the network foundation – convergent infrastructure.

Following services characterizing modern network infrastructure:

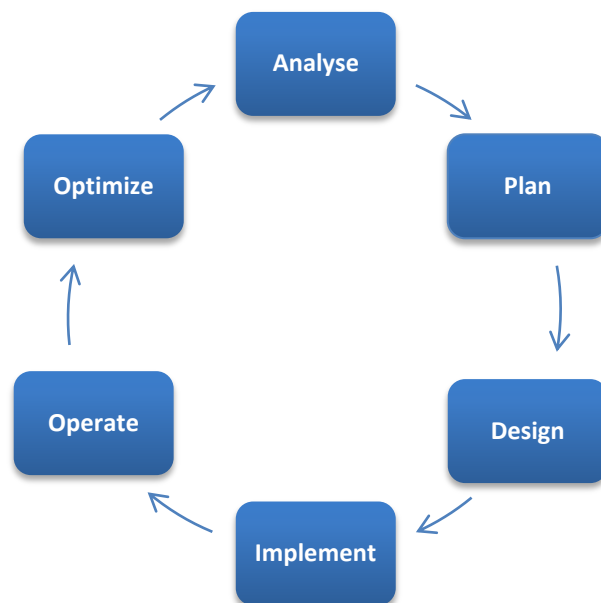
- Mobility – availability of network systems regardless of place and time
- Safety – safe access to data, policy and control of access to IT resources
- Efficiency – optimization of the efficiency of infrastructures
- Convergence – transmission of data, voice and video
- Pro ecology – environmentally friendly

Life cycle of network infrastructure and design

Life cycle of network infrastructure can be described as a process and it is an important element of correct assessment, designing and optimization of infrastructure. Construction of an effective and stable IT system, its development, implementation of new applications and services requires a process approach for the purpose of analysis of the existing resources and the possibilities of implementation of a new solution. Integration of the present and future services in the network is a critical process for the preservation of stability and continuity of the entire system's operation, therefore such an important task is to identify the goals and limitations of the organization. The design process that we offer to our customers is based on a proven methodology, the purpose of which is to preserve a relevant decision-making process. Decision-making process in the course of network design is correlated with "the life cycle of network infrastructure", the characteristics of which provide optimal approach to designing. Application of a verified methodology allows to reduce the total cost of implementation and future maintenance of the entire system.

The following phases characterize the life cycle of network infrastructure:

- Analysis – business recognition and identification of goals and limitations
- Planning – initial analysis and planning of infrastructure
- Design – preparation of the solution's concept
- Implementation – network design implementation
- Operation – network production period
- Optimization – adaptation of the existing configuration to new needs



Network infrastructure lifecycle phases.

Methodology of infrastructure designing and integration of services

Network infrastructure should reflect current and future business objectives, therefore, it must develop along with the organization and meet its new expectations. We pursue the process of infrastructure design and integration of services on the basis of the following methodology:

- Analysis of the specific nature of business
- Identification and analysis of requirements, objectives and business–technical limitations
- Network infrastructure design
- Implementation tests
- Implementation of solution
- Post-implementation network support

We start the process of designing infrastructure or network services from the analysis of the specific nature of our customer's business, identification of objectives, expectations and plans concerning the IT system. We identify business and technical limitations as well as potential impact on the implementation of the assumed requirements.

We identify present resources and analyse their influence on goals implementation. We create tasks, set areas of responsibility as well as critical points and elements required for the project implementation.

In the design phase we create a detailed design on the basis of prior analysis of requirements and business – technical limitations. We start designing from preparation of the initial concept of infrastructure in which we present the solution, options of active and/or passive elements as well as protocols and functionality that will allow us to implement the set goals.

The design process is consulted on a current basis with our customer for the purpose of acceptance of the suggested solutions. The accepted concept is the foundation, the high level design, which is then developed in detail by our architects. A detailed design is the basis for the phase of implementation.

After the design acceptance the implementation phase begins, where we implement the solution in accordance with the assumptions and schedule of the design. The purpose of implementation is to integrate new services and network elements with the existing infrastructure, maintaining full productivity of the entire IT system.

Every implementation and integration with production infrastructure is preceded by the phase of implementation tests and the process of commissioning of particular elements of the project.

Post-implementation period is a very important element of the whole process of designing and implementation, which provides customers with full support for the implemented solution, which minimizes business risk. In the post-implementation period we support our customers and monitor the condition of operation of the newly designed system elements.

Network solutions, services and technologies

Under our competences we offer designing of the following network solutions:

- LAN/MAN/WAN/Campus networks
- VPN Networks
- Wireless networks
- Multicast networks
- IP telephony

Network infrastructure is a dynamic environment evolving along with the development of the organization and changing business needs. Growth in demand for a band, current reconfigurations, uncontrolled implementations of new services and applications may result in destabilization of the entire network system. Constantly developing Internet hazards have a strong impact on preservation of safe data transmission. Continuous analysis, audit and optimization of infrastructure, services and procedures is an important factor which will make it possible to preserve the stability of network operation and to keep business productivity.

In order to fulfill the aforementioned challenges, we offer the following optimization options:

- Optimization of routing protocols
- Designing high availability of services
- Guarantee of the Quality of Services (QoS)
- Network security
- Identification of IP Service Level Agreement levels
- Services supporting network management
- Network capacity management
- Optimization of network management procedures

Design, implementation and maintenance of network infrastructure is undoubtedly a great business and technological challenge for every organization. Ensuring optimal transmission, stability and system development opportunities with minimum financial expenses is the key to success.

NetContractor consultants will help to preserve business– technical balance when developing the foundation of your company. You are welcome to cooperate with us.

 **NetContractor**

Our company that specialize in consulting, design, integration and implementation of network solutions based on Cisco Systems products.

Above services are deliver in following specializations:

- Routing
- Switching
- Security
- Wireless
- Voice

Our value are people. Our consultants have long-term design and implementation experience in international projects for corporations, financial institutions and large companies.

Expert competencies of our consultants in the field of Cisco Systems solutions and technologies are confirmed by the prestigious Cisco Certified Internetwork Expert title.