

implementing next generation  
IT and communications solutions



**NETvisor**  
**NETinv**

| telecommunication networks | it networks | research and development | cost effective operation

# NETinv

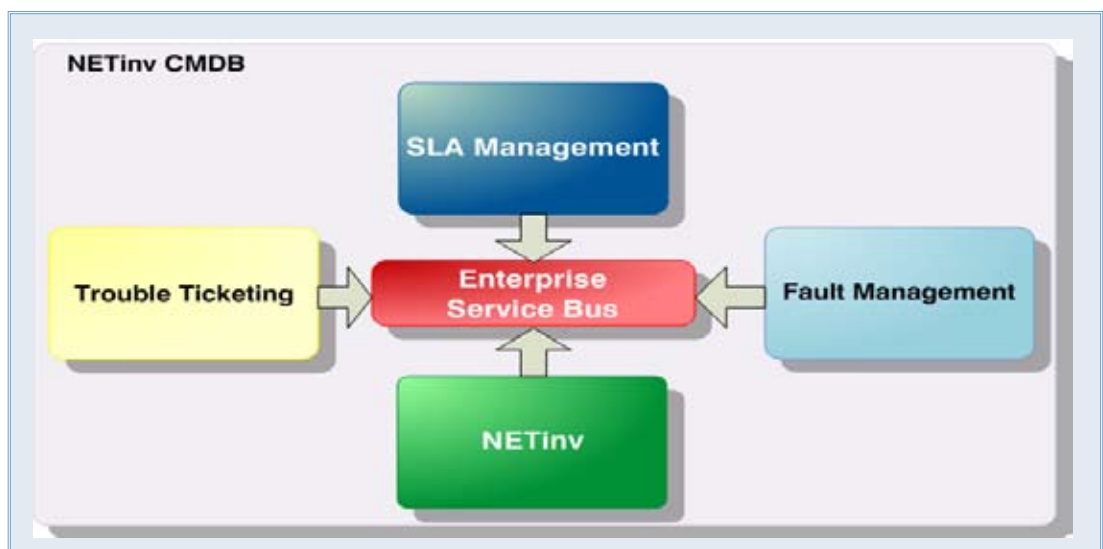
*for Telecommunication Service Providers and Enterprises*

NETvisor's NETinv service and network resource inventory system enables for telecommunication service providers and enterprises creating an integrated inventory of their telecommunication networks and IT systems. An accurate service and network resource inventory is essential for efficiently performing the daily operational tasks: troubleshooting, provisioning, planning and design, capacity and resource management.

Beyond supporting the daily operational processes NETinv has a very flexible data schema enabling the modeling of new product families and new technologies in the system. New type of equipments in the network can easily and quickly be integrated into the inventory avoiding a long lasting and expensive software developing process that is typical for network resource inventory systems with fix data schema.

## Benefits

- Capacity management
- Manages the objects during their whole lifecycle
- Site and equipment visualization
- Predefined templates for equipment, card and circuit types minimizes the manual tasks of creating new objects
- Ergonomic web based client and admin GUI
- Dynamic attributes allow the quick and easy customization of GUI
- Fine-grained multi-level role-based authorization system
- Highly scalable



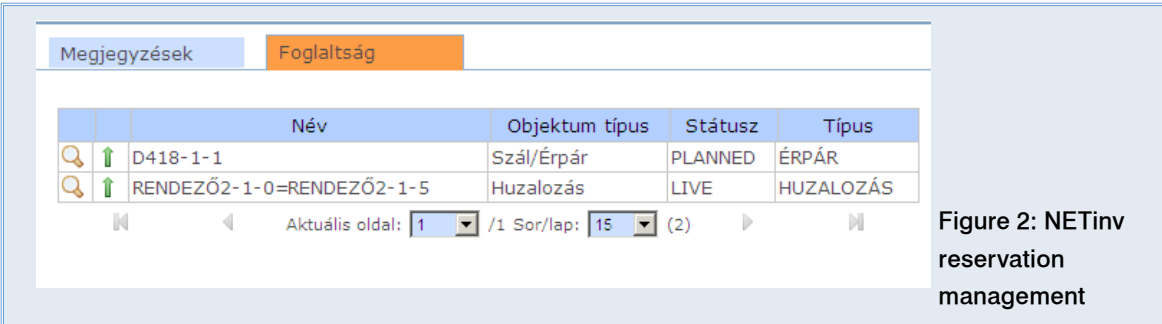
## Main features

### Web based GUI

Clean and ergonomic web based GUI assures the easy administration of the platform. The GUI is based on the emerging AJAX technology that enables creating web based GUIs with rich client features and without the disadvantages of the current/past web technologies.

### Capacity and reservation management

NETinv supports the visualization of the reserved status for the objects in the inventory. Beyond this feature the system ensures that a resource reserved by another object cannot be deleted..



Megjegyzések		Foglaltság		
	Név	Objektum típus	Státusz	Típus
🔍 ↑	D418-1-1	Szál/Érpár	PLANNED	ÉRPÁR
🔍 ↑	RENDEZŐ2-1-0=RENDEZŐ2-1-5	Huzalozás	LIVE	HUZALOZÁS

Aktuális oldal: 1 / 1 Sor/lap: 15 (2)

**Figure 2: NETinv reservation management**

### Dynamic attributes

NETinv supports the creation of new attributes besides the built in attributes, and publishing them on the client GUI. The newly created attributes are fully equivalent to the built in ones. The dynamic attributes allow the quick and easy customization of GUI without modifying the code. The admin user interface provides a convenient tool for creating new attributes. The type of dynamic attributes can be: text, number, date and value list.

### Templates

The predefined templates for equipment, card or circuit types minimize the manual tasks of creating new objects. Templates can be edited through the GUI like any other object.

### Complex queries

The web based client GUI supports executing complex queries.

### Planning

NETinv supports the management of the whole lifecycle of the objects stored in the system including the planning, operating, and the decommissioning processes. Objects can be assigned to a plan and be activated in one step.



## User authentication and authorization

The fine-grained multi-level role-based authorization system enables one to limit the scope of readable and modifiable data. Depending on the installation environment the authentication of the users can also be performed by an external LDAP server.

## Scalability

NETinv simultaneously allows access for multiple users and modification of the data while maintaining data consistency.

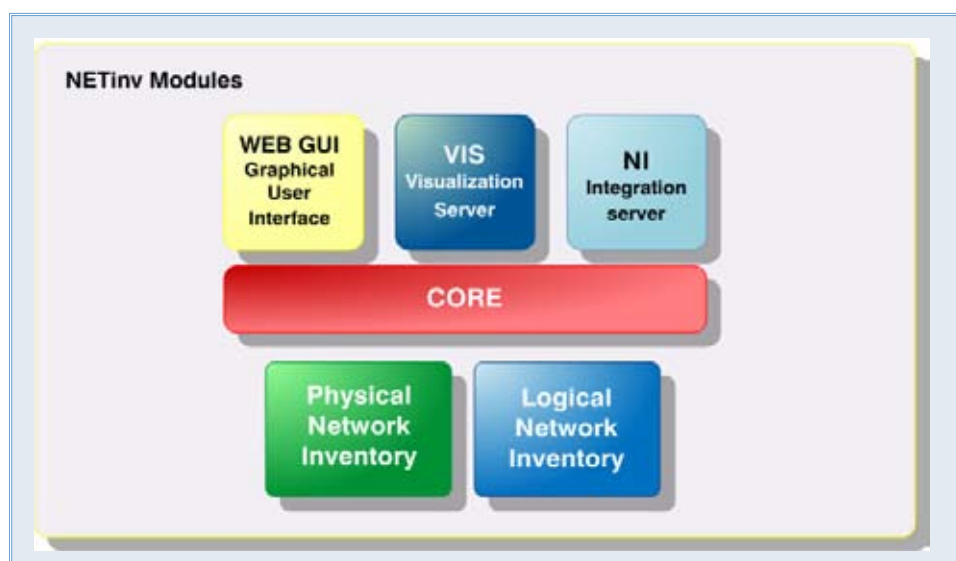
## Logging

The system supports the field-level logging of the operation performed on the objects in the inventory.

## Modules

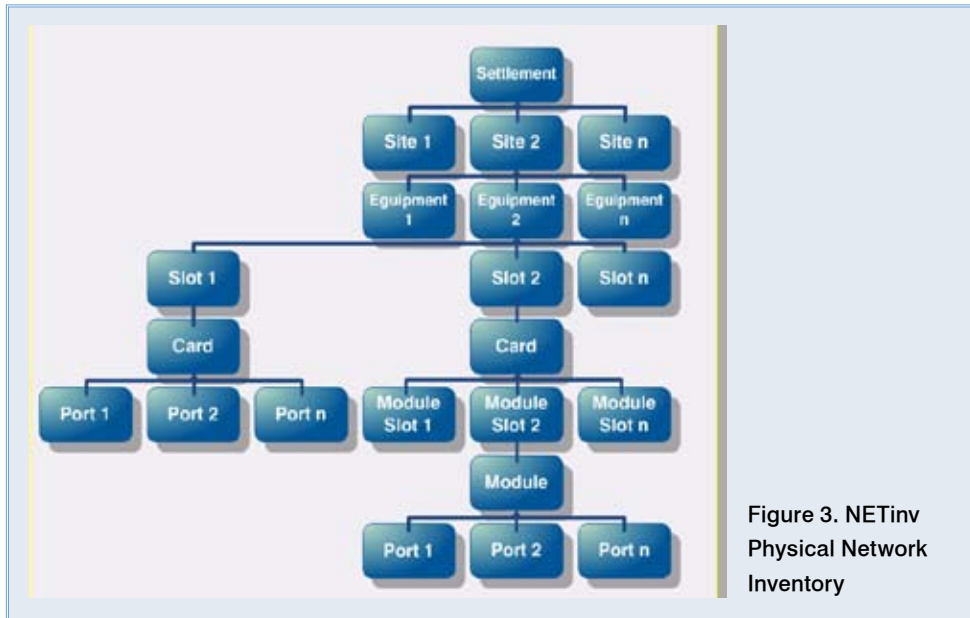
The NETinv technical inventory systems contains the below functional modules:

- Physical Network Inventory: is an inventory system for the physical networks (cables, connections, manholes, hand holes, etc.) inside and outside of the buildings.
- Logical Network Inventory: is a service and logical network inventory system for telecommunication networks. It includes built-in integration for the above described module, and the two modules together provides a fully integrated solution for inventory and planning covering the whole network.
- Visualization Server (VIS): is a module schematically visualizing the technical data stored in the system.
- Integration Server (NI): provides a standard open interface (SOAP, HTTP) for integrating NETinv to other support systems.



## 1. Physical Network Inventory

The Physical Network Inventory module contains a general data model for managing the objects in the physical layer of the telecommunication networks. This data model can be found below:



### Site/Manhole

The sites are the locations of the equipments used by the service providers and its customers. Sites can contain equipments and each of them in the system is allocated to a site.

### Equipment

The equipments in NETinv are organized into a flexible hierarchy capable of modeling the currently available telecommunication equipments.

The sites are on the top of the hierarchy. Sites can contain racks and racks can contain equipments. The equipments can contain slots with cards in them, and the cards can contain ports or extension module slots.

### Cable

Modeling the cables allows for managing the physical connections in the system. The capacity management functionality of NETinv provides full control over the free cable capacities (fibre strand/wire pair).

### Fiber Strand/Wire pair

The fiber strands and wire pairs can be found in cables and their number depends on the type of the cable. NETinv stores the connections between the fiber Strand/wire pair objects and the logical paths. Through this function the system supports the connections between the physical and logical



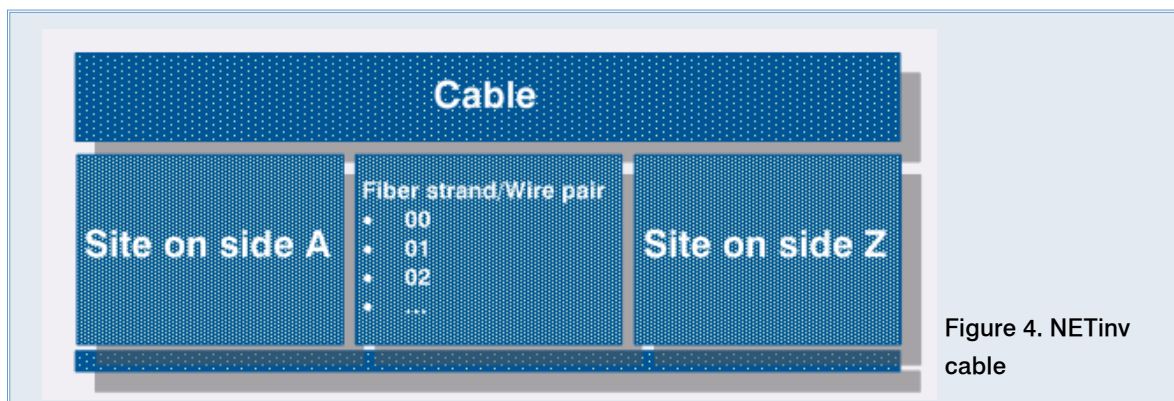


Figure 4. NETinv cable

network layers.

## Splice

NETinv has a clean and ergonomic splice editor user interface for editing the connections between fiber strand and wire pair objects. It also provides a good overview the fiber strand and wire pair objects ending on a given site.

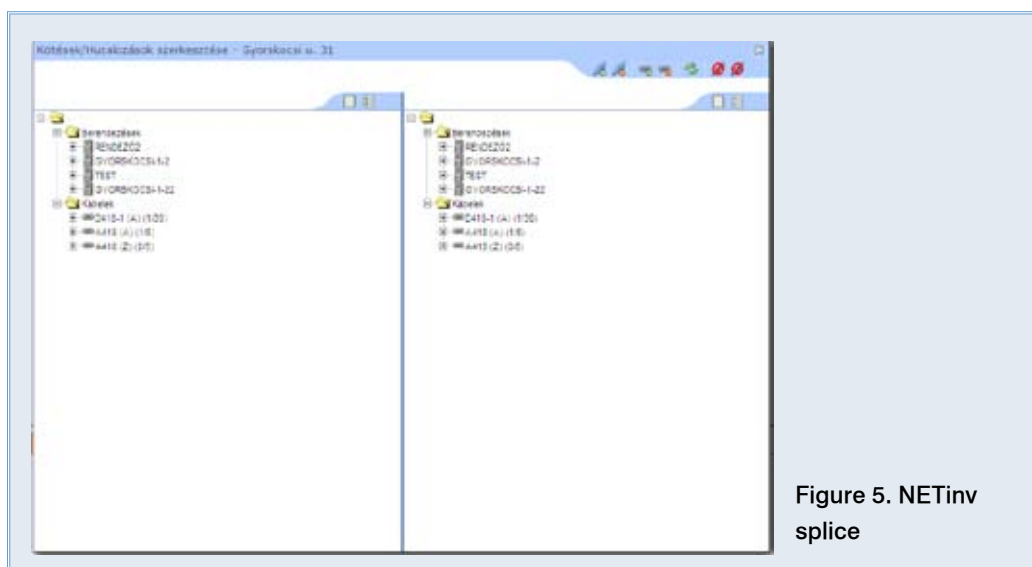


Figure 5. NETinv splice

## 2. Logical Network Inventory

The Logical Network Inventory module ensures the management of circuits and the services based on the physical equipments in the telecommunication network.

### Circuits

The modeling of circuits in NETinv allows of managing the inventory of arbitrary telecommunication technology. Any number of revisions or routes can be recorded in case of a given circuit. The element of a route can be a port, channel of another circuit or a fiber strand/wire pair object.



The revisions of the circuits can be stored supporting the process of planning and designing. The channels of a circuit can be used by other circuits. By the help of the capacity management functions the system fully supervises the free capacities of the network.

## Logical ports

We can assign logical ports to the equipments that can be used as endpoints for circuits.

## Services

NETinv supports the inventory of P2P and VPN services, furthermore it is able to manage the connections between services and the allocated network resources and the related service quality parameters.

## 3. Visualization Server (VIS)

The Visualization Server module allows the schematic visualization of sites and equipments stored in the system. The following visualization types are available through the WEB based client GUI:.

### Site visualization

NETinv supports the visualization of sites and manholes stored in the inventory system and the connections between them on maps uploaded in raster format.

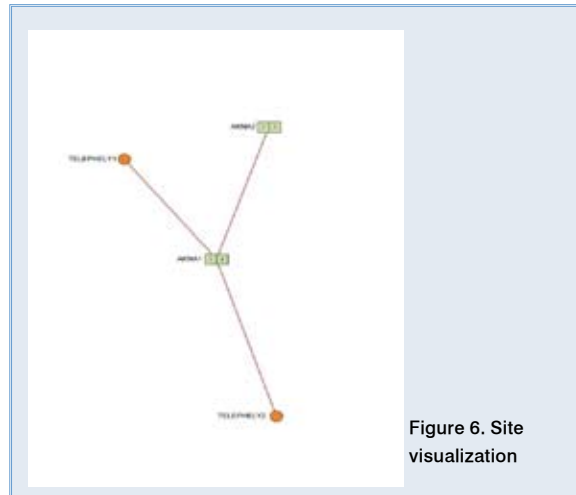


Figure 6. Site visualization

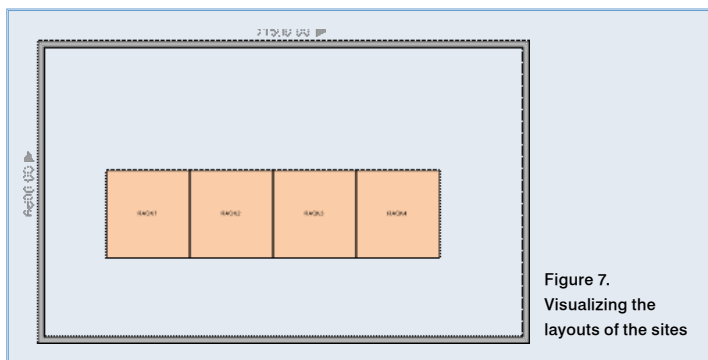


Figure 7. Visualizing the layouts of the sites

### Visualizing the layouts of the sites

Layouts in raster format can be uploaded for sites in the inventory system. NETinv supports the visualization of the raster layouts for a site and the top-level view of equipments on the site based on their positions..



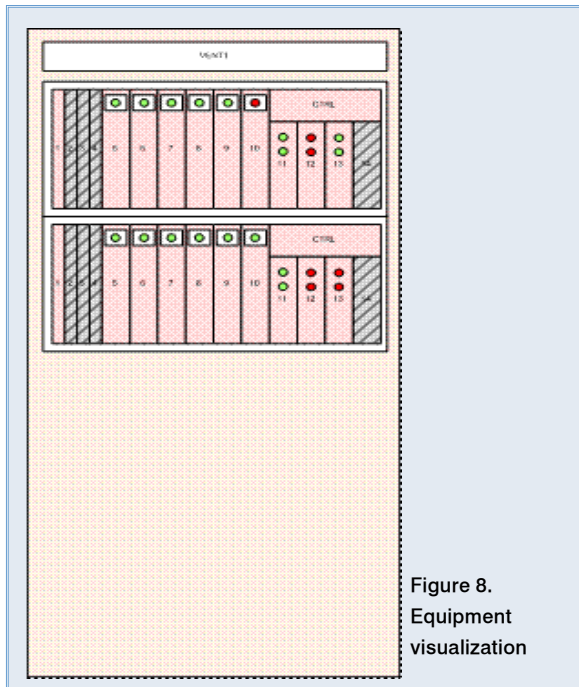
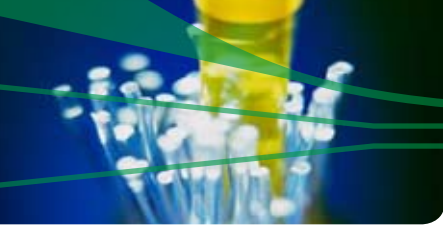


Figure 8.  
Equipment  
visualization

## Equipment visualization

The system supports the visualization of the front view of equipments including their cards, modules and ports based on the dimensions stored in the equipment templates and the positions stored in the objects.

## 4. Integration Server (NI)

The Integrator Server module provides an open northbound interface for the system through SOAP, HTTP protocol. It supports accessing all object types stored in the system. The architecture of NETinv also enables the development of new interfaces using other proprietary protocols.



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