



# CROSS Network Intelligence

How CROSS supports GPON  
deployments and services

## Introduction

### How CROSS supports GPON deployment and services

Gigabit-capable Passive Optical Networks, better known as GPON, is a mature set of standards that define how the final stretch of fiber to the premises deployments should be implemented.

Defined by the ITU under standard G.984, GPON has become an essential tool that enables operators to rollout fiber connections to residential and business customers.

Demand for GPON has surged in recent years. That is partly because standards evolution has extended the reach of GPON networks, but it is also because the advent of 5G has fueled additional demand for GPON connections to cell sites, a prerequisite for 5G service delivery. With growth reaching nearly 25% CAGR, the market is set to exceed \$25 billion by 2024, according to Zion Research.

With so much at stake, it is important to get GPON deployments and service activation right. CNI plays a key role in enabling this market to flourish. Read on to discover how CROSS supports GPON deployment and services.

## Inventory management

### Why inventory management plays a central role

CROSS provides a single, comprehensive inventory of all assets in a network, from physical to virtual, logical and service.

This view is fundamental to any GPON service, for several reasons:

- Deployment teams need to know what is required at each point of the delivery
- Service and sales teams need to know what resources need to be activated and where they are
- When an order is raised, all required resources must be allocated and activated, automatically through the business systems
- This information is also required by support systems, once the service is live

Each GPON connection follows a path and involves multiple physical assets. The sum of these must be known so that the planned deployments can proceed.

GPON deployments typically follow a clear schedule. A location is targeted and GIS data is used to create a plan for the physical implementation, mapped to the roads, paths and wayleaves available. This plan has to be validated but then provides the template for delivering services to the premises and cell sites required.

GPON deployments are invasive, usually requiring street works and trenching, which must be planned carefully. The resulting plan needs to be converted into a Bill of Materials, or BoM, which will detail the required components, as well as the paths through which they will be delivered to each location.

# From BOM to data collection

## Import to availability

CROSS includes standard configuration capabilities for Coax and FTTx/ GPON components, such as node types (splitter, splice, pole, UUB, pole box, wall box, and so on) and link types (fiber cable, coax cable, bundle, fiber, GPON link, GPON path, underground route).

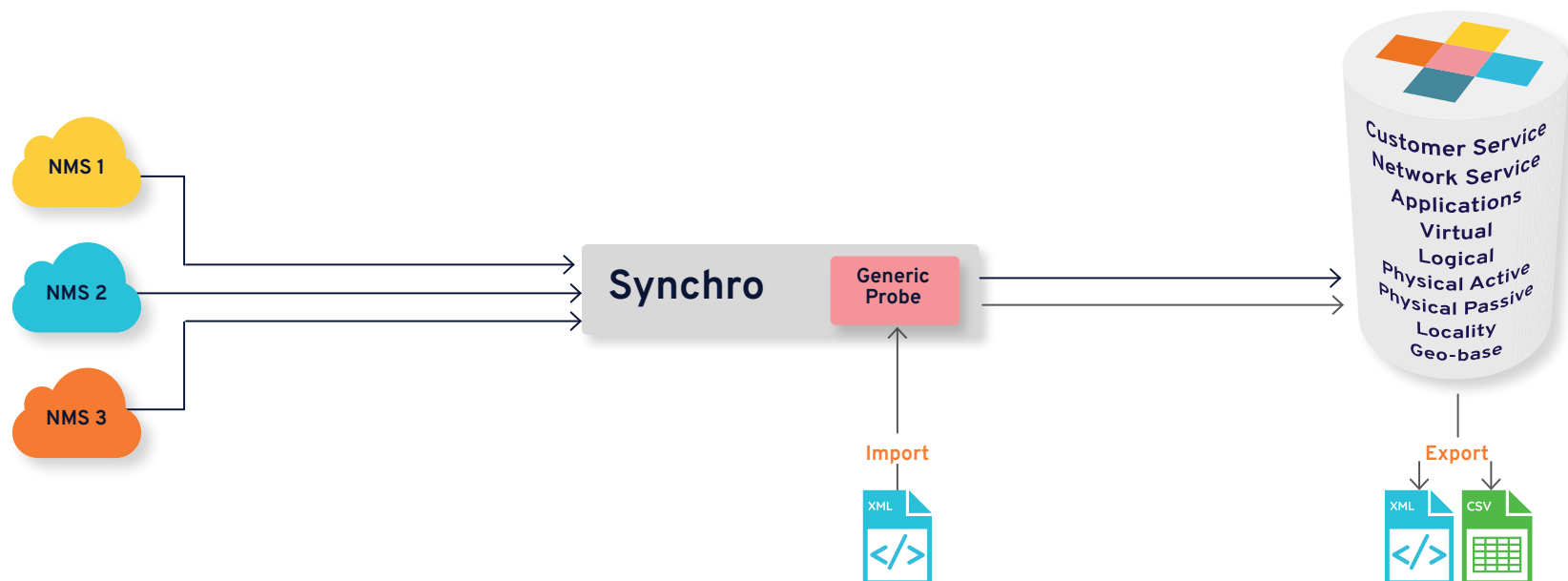
These assets provide a plan or map of the service, which is maintained within the CROSS inventory database.

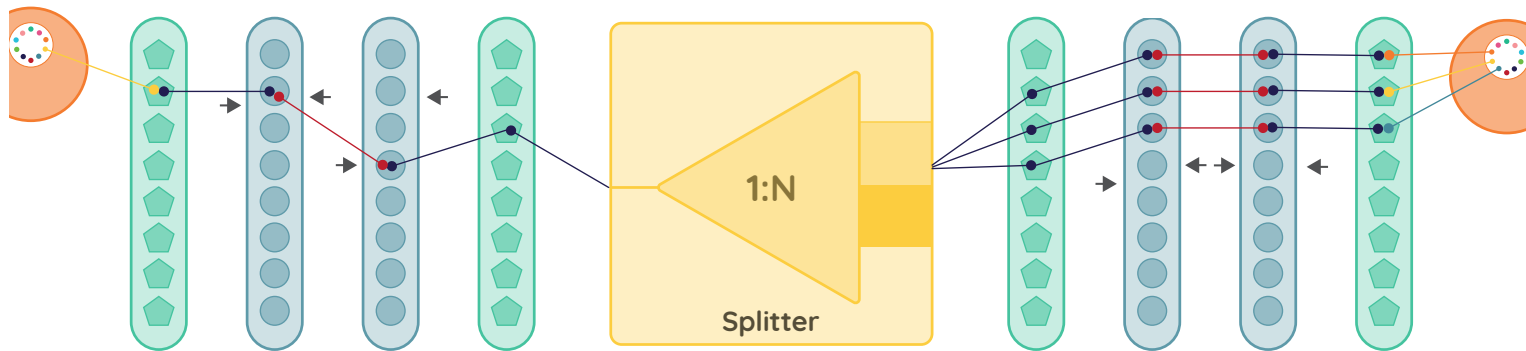
The CROSS SYNCHRO module synchronizes external data into CROSS. It includes a generic probe for standard XML files, based on a definition in the CROSS system, that represents designs (for the planned GPON network) in different stages, from high-level design to low-level design.

Finally, a record of how the deployment was actually achieved is also provided.

A generic probe is used for the initial migration of the required XML file into CROSS, as well as for future updates. During the import process, data is checked for accuracy according to the set configuration and data model.

As part of this process, the old and new data is presented side-by-side, with inconsistencies between the two highlighted to facilitate user decision making and actions.





The generic probe can also be used to export data from CROSS to a standard XML file, using an external ID to enable sharing of the same data within different environments.

To ensure future consistency, any changes to FTTx/GPON designs will be incorporated into CROSS using appropriate workflows.

### Data sharing and flow

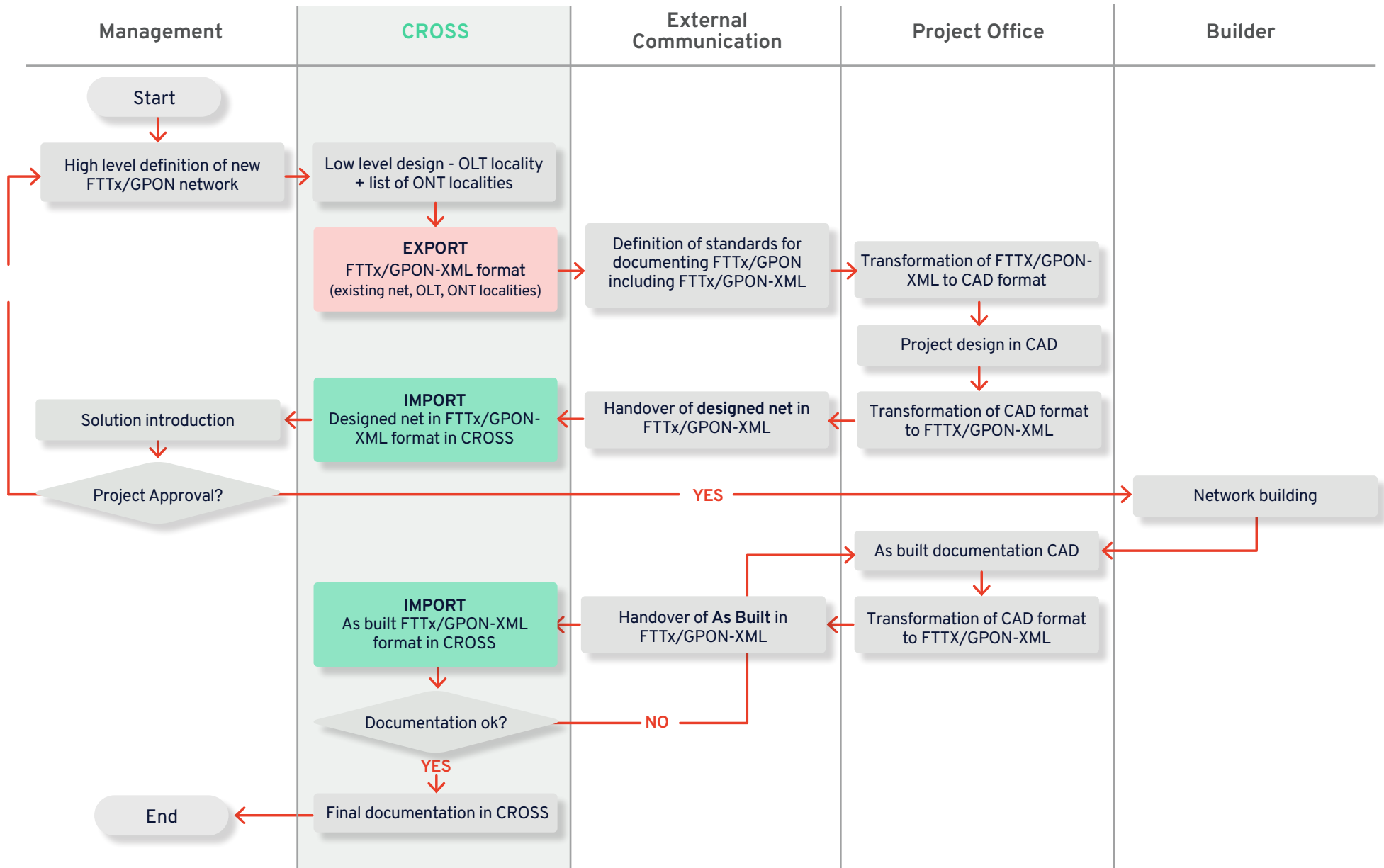
With the base network in place, the fiber provider needs to be able to quickly and easily activate services when they are sold to customers.

This requires close integration between business and sales systems and operational processes.

As an agile inventory platform, CROSS provides the key resource that enables service activation and management to take place, efficiently.

# FTTx/ GPON manager

## Data sharing and flow



## Customer Service activation

### The need for careful integration

It can be seen from the following diagram that each step requires tight coordination between different systems, with a smooth flow of data at every point. When a service request is received (because a sale has been made), a workflow can automatically be generated, which allows the status of the specific service to be checked in the required customer location. Once having passed technical feasibility checks, then a new project request can be created in CROSS.

Similarly, a template for the resources required for a particular service is also needed. This template can be matched with the inventory of overall resources to determine if the required resources are available and, if so, they can be allocated to a specific customer at a particular location. A series of other steps is also necessary – for example, ensuring dispatch of any required Customer Premises Equipment, the activation of resources to monitor the service chain in the operational model, and so on. CROSS is able to achieve this because it maintains a clear record of all the resources required by the service and their availability.

So, as GPON deployments proceed, CROSS maintains a record of each new connection – numbering many millions in some cases. In turn, this allows the overall service base to be managed, sold and supported.

It is this tight integration between order processing, service billing, resource allocation and activation, and management that enables GPON providers to meet their targets and to ensure that their investments are carefully protected.

## CROSS and GPON

### Successfully delivering agility for effective deployments

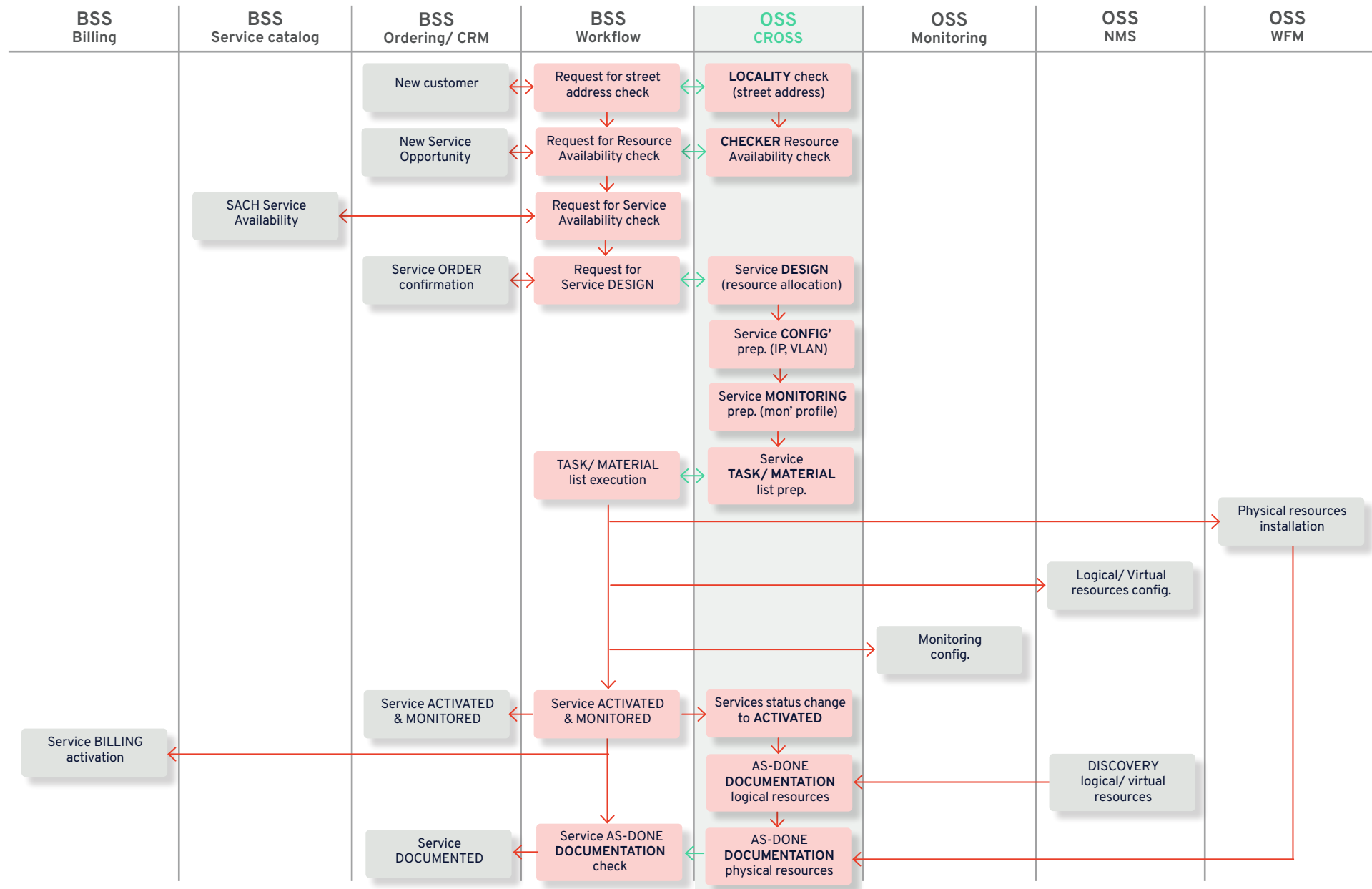
GPON planning and delivery requires data from different sources to be combined into a single source of truth.

Access to this information and its integration with workflows and processes allows GPON providers to not only deploy their physical networks but also to meet a growing range of use cases – from residential, to business customers, and on to business partners who need fiber assets to link a growing footprint of cell sites, for example.

To ensure efficient delivery and optimized performance of GPON investments, operators cannot thrive without data consolidation into a single inventory system that can also be accessible to all relevant BSS.

# Customer service activation

## Service activation for a residential customer





[info@cross-ni.com](mailto:info@cross-ni.com) |

[www.cross-ni.com](http://www.cross-ni.com)