

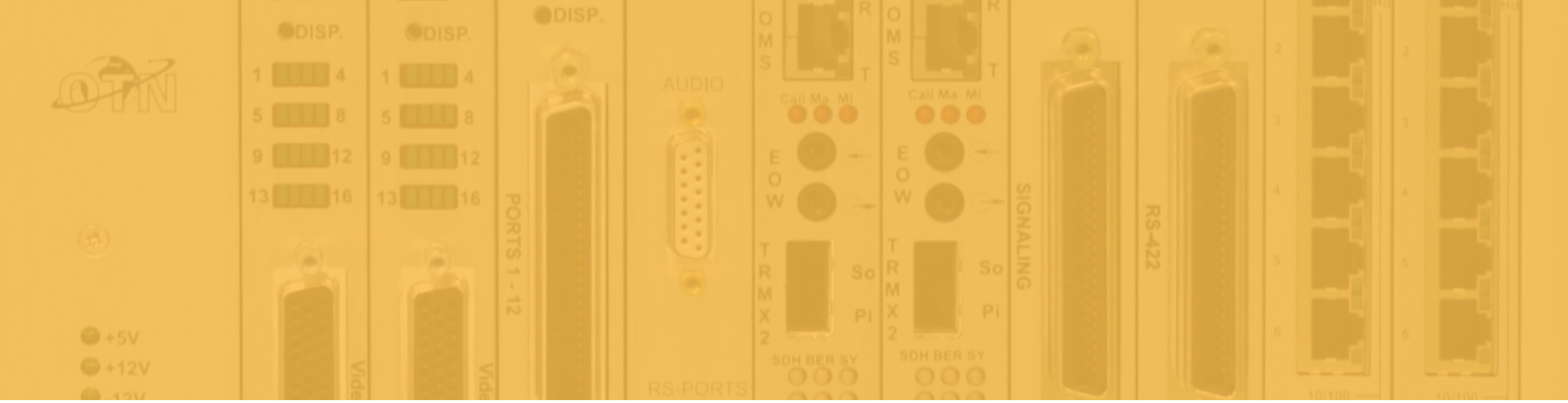
**MASTERS IN MISSION CRITICAL COMMUNICATIONS**

# **OTN Systems Company Profile**

*“OTN Systems has served the industry for decades and accumulated a **wealth of experience**. Its hunger for the newest and the latest, its out of the box thinking capabilities and the can-do mentality has resulted in **innovative products** and market leadership.”*



Dirk Van den Berghen  
*Chief Executive Officer, OTN Systems*



## PRIDE,

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...is probably the one word which best sums up how we feel about what OTN Systems has achieved during the past 26 years.

Our passion for translating what truly matters for our customers into **highly reliable industrial network solutions** drives us day in day out - making sure our customers can achieve their business goals.

At OTN Systems we continue to solely focus on the telecom needs of industrial markets. This approach propelled us into a **leading position in specific verticals** such as Metro & Light Rail as well as Oil & Gas. To these customers, a telecom infrastructure is a "necessary evil" which needs to be highly reliable, very easy to use with a hard commitment to extended lifecycle support.

With our new flagship product (XTran), OTN Systems not only wants to maintain its leading position in the latter market segments as customers migrate to next generation technology, we also want to become an important player in the power utility market as their new network roll-outs will be packet based. XTran customers take the full benefit of our **26 years of industry-specific expertise**.

The associated management system (TXCare) is unmatched in the industry in terms of reliability and ease of use.

With the support of our main shareholder Gimv, we decided to further accelerate R&D investments to guarantee our customers state-of-art and future proof investments, tailored to their specific industrial needs. Furthermore, we are signing up new partners across the globe to increase our access to market and further reinforce local support for our customers.

We hope you will enjoy reading this leaflet. We look forward working with you as a customer or as a partner. Do not hesitate to visit our new website **[www.otnsystems.com](http://www.otnsystems.com)**.

**Thank you and pleasant reading.**

Yours sincerely,  
Dirk Van den Berghen  
*Chief Executive Officer OTN Systems*



## A BIT OF HISTORY...

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The roots of OTN Systems go back to the late eighties when the OTN team was embedded in the Siemens organization, an excellent apprenticeship for learning how to make high quality products. Although Siemens still had a powerful communications division, its industrial divisions were lacking a proper wide area network to tie all of their applications together. Off-the-shelf solutions simply couldn't do the job as they lacked key functionality one way or the other.

The team filled that gap nicely with a product called OTN - Open Transport Network. The system was able to get all types of information (standard and industry specific) across. No matter what. As soon as the product came on the market, the industrial divisions of Siemens embraced it and took it all over the world. The rest is history.

*With decades of  
experience, we claim  
to understand your  
business.*

A couple of decades later, OTN Systems still builds networks that don't appear to be there, but are always available, under all circumstances. The essence of networking. We know that our customers have other things on their mind, so we have turned this topic into a no-brainer for them.

## PUSHING THE BOUNDARIES OF TECHNOLOGY

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OTN Systems has always been at the forefront of technology. The bigger the challenge, the better. The "let's-do-it" attitude has led to significant breakthroughs in the industry. Some examples.

### Taking the LAN into the WAN

**1980s** - In the eighties, LAN technologies took off fast. It soon became clear to the OTN team that Ethernet would become a game changer. The initial IEEE802 specifications were targeting the office environment and held constraints in terms of distances. WAN networks were built with telco-centric technologies like PDH/channel banks and SDH/SONET based on voice-oriented 64 kbps channels. In 1988, the initial OTN product was launched with an Ethernet interface offering a speed of 10 Mbps over an unlimited distance, fully transparent. All of a sudden, the office network was seamlessly extended into the WAN.

No constraints, no bottlenecks. The OTN system was the first TDM based system offering this capability. It made the life of system designers so easy. SCADA systems no longer needed gateways or convertors as one could connect them straight to OTN in native mode. Full speed, full transparency. Such a relief!

Later on, Ethernet was gradually adopted by carriers as a transmission technology. Today, wide packet networks have become dominant.

### **Crystal clear pictures, in real time from anywhere**

**1990s** - In the nineties, video surveillance was done with matrix switches. Each camera was wired with a dedicated coax cable to a video matrix. Operators switched video streams by giving commands to the matrix.

The OTN team came up with a disruptive approach: the network became the matrix. Powerful video compression boards were developed providing clear picture quality in real time. Switching capabilities were embedded in OTN to select video streams. The matrix was gone. Cameras were hooked up to the nearest OTN node at a fraction of the cost. The end of traditional video surveillance had begun.

Nowadays, the networked approach for video surveillance has become the standard. Thanks to the pioneering work of OTN Systems.



## MPLS-TP: SOLVING THE PARADOX

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Real-time communication over packet networks has always been a nightmare. Mature technologies like SDH/SONET handle this type of traffic easily because transmission delays are negligible and fixed. Packet networks however are far more unpredictable and delays tend to be long.

This is no issue for most modern applications like internet browsing, broadcasting of video or file transfer. But for industrial networks, real-time data communication is critical. For that reason, many industrial users opt for SDH/SONET technology in the WAN, still today.

As soon as the IEEE started to issue the first MPLS-TP drafts, OTN Systems recognized that the successor of SDH/SONET was born. This packed based standard was set to become a viable alternative to SDH/SONET, and more.

The paradox was solved! In the meantime, MPLS-TP is coming on strong as other vendors jump on the bandwagon and end-users start recognizing the value it

*OTN Systems was first on the market to launch an MPLS-TP product for the industrial market segment, called XTran.*

brings compared to other technologies such as carrier Ethernet or IP/MPLS. Clear advantages of MPLS-TP over other technologies are widely accepted:

- Deterministic character and **improved network predictability**:
  - Some MPLS features such as PHP, ECMP, LSP Merge were removed in order to improve network predictability.

- Bi-directional MPLS-TP tunnels use the same path (congruent paths). This assures that delays are always symmetrical and that fault tracing is made easy.
- **Predefined back-up paths** can easily be set up to cope with fault conditions (< 50 ms switchover) in order to improve network resilience.
- **Improved OAM** (Operations, Administration and Maintenance) supporting better fault and performance management – further improving the operator’s visibility on the network behavior.

*MPLS-TP offers unique features making the network operator’s life less complex.*



## SECURING MARKET LEADERSHIP

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OTN Systems' markets are clearly neither the carrier market nor the enterprise market. The company's goal is to achieve market leadership in specific verticals.

### **Metro & light rail (LRT): setting the standard**

One out of 3 metros and light rails in the world use a network of OTN Systems to run their daily operations. It all began in 1989 with the Manchester Metrolink. Many major cities in Europe like Brussels, Amsterdam and London have followed this example. Besides Europe, many mass transit systems and LRTs in China's major cities use a network made by OTN Systems. Beijing, Shanghai, Guangzhou, Shenzhen, Chongqing, Suzhou, Tianjin, Ningbo... the list goes on. Also in North and South America and many regions in Asia, OTN Systems has a dominant position in the public transportation market.

### **Oil & Gas: being the benchmark**

Since the early nineties OTN Systems has been the benchmark for networking in the oil & gas industry. All the major national oil and gas companies in the Middle East such as Saudi Arabia, Qatar, UAE and Oman rely on OTN Systems for their daily network operations. The biggest player in Africa, Algeria based Sonatrach, is using OTN Systems products to operate their pipeline grid. In many other top producing countries, like Russia and Mexico, OTN Systems has a leading position.


### **National rail & power utilities: the conquest continues**

In 2010, 2 years after the founding of OTN Systems as an independent company, work started on a brand-new portfolio called XTran. With this product line, the company not only wants to maintain its leading position in the various traditional segments, it also strives to become a dominant player in the national rail and power utility market. After a period of in-depth market research involving many end-users, development was started. XTran was successfully launched in 2014 at InnoTrans in Berlin for the rail industry and at Cigré in Paris for the power utility market.

Both sectors struggle with tremendous challenges as their traditional way of working is under pressure.

*OTN Systems is committed to help them overcome the challenges in a smart way.*





*Getting 6.000.000 people to  
their destination per day in the  
subway of Guangzhou.*



*Transporting 50 billion of  
natural gas in Algeria.*



*Providing electricity to over  
1.000.000 households in Belgium.*



## PRODUCTS

OTN Systems markets two distinct product lines, OTN and XTran.

	<b>OTN</b>	<b>XTran</b>
Underlying technology	<i>SDH/SONET</i>	<i>MPLS-TP</i>
Network topology	<i>Ring and coupled rings</i>	<i>Any</i>
Mechanical design	<i>19"</i>	<i>19", DIN Rail, fanless</i>
Analogue video	<i>Yes</i>	<i>No</i>
Legacy interfaces	<i>Yes</i>	<i>Yes</i>
IP enabled	<i>Yes</i>	<i>Yes</i>
Ethernet access interworking	<i>Yes</i>	<i>Yes</i>
Protection	<i>Network protection</i>	<i>Service protection 1:1, Hitless and logical ring</i>
Network Management	<i>OMS</i>	<i>TXCare</i>

A more important factor however is what both portfolios have in common...

### Open, tailored to the sectors

Both product lines come with an extensive suite of interface cards. These cards are required to support all applications encountered in the various industrial sectors. Legacy equipment can be kept on board for a longer period resulting in significant cost savings. Migration scenarios can be implemented when the time is right. Both networks seamlessly join the world of process control, voice communication, data acquisition, IoT and video surveillance. All in one, no hassle, no sweat.

### Reliable, resilient, safe

Our customers run multi-million euro businesses which

depend entirely on the availability of their network. Zero downtime is simply mandatory. Special features are built into our networks to guarantee this non-stop character. Instant, automatic reconfiguration on cable breaks, redundancy of vital network components such as power supplies, common control hardware and network management functions, guaranteed quality of service and protection from hacking are some of the standard features. As our products are often installed in harsh environments, special precautions have been taken to cope with dust, extreme temperatures and hostile EMC/EMI surroundings.

### Simple and smart

Both systems were designed with one thing in mind: keep it simple for the user. The operations run by our customers are demanding enough, they cannot afford the "burden" of a complex network. OTN Systems' products do not require in-depth IT know-how. Operating the network is easy and straightforward. The network management systems shield the network administrator from the underlying technical complexity. Maintenance, if any, is limited to swapping a card. Needless to say Operational Expenditures (OPEX) are kept to a minimum.

*Everybody claims  
to understand your  
business, only some do.*

## OTN, THE MULTI-SERVICE NETWORK

- SIMPLE to install, manage and maintain
- MULTI: all applications combined on a single backbone
- NON STOP operation



XTran

## XTRAN, POWERED BY MPLS-TP

- CLEVER data telecommunications for smart people
- TAILORED to your specific market needs
- SAFE investment in the future of your network

## WWW.OTNSYSTEMS.COM

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OTN Systems is headquartered in Olen in Belgium and has offices all over the world. The local partners are supported from these regional offices. All partners have been certified to perform local installations and after sales services.

Some of the OTN Systems staff go back to the early days of OTN. They know the ins and outs of our products, went through all the pitfalls and can coach the youngsters perfectly. The mixture of experience and fresh eagerness forms a perfect blend.

OTN Systems invests heavily in R&D in order to keep its leading position in the industry. More than 30 % of the personnel are dedicated to product development.

Highly skilled software and hardware engineers use cutting edge technology in the domains of fiber optics, FPGA programming, networking protocols and software tools to design highly innovative new products. Extensive integration and system testing make sure the released products live up to the highest quality standards. The service department provides installation, commissioning, training and hot-line round-the-clock support services.

Our customers and partners around the globe can count on a well-trained support team for professional assistance. We're there, any time, any place.

Although it is our clear strategy to work indirectly via a network of well-trained partners, we take over tasks from them when this is beneficial for the end-customer: network design and customization, third party systems integration, engineering, as-built drawings, factory acceptance testing, installation and commissioning, OTN Systems has the experience! A team of certified project managers will make sure the job is finished in time, within budget. Their valuable experience obtained from the field helps us to improve our products even further.

With a unique product portfolio, a world-class base of satisfied customers, a partner network reaching out to every corner of the world and an excited team, we can promise you peace of mind when it comes down to mission-critical networking:

**OTN Systems is committed to get your information across.**

## OTN SYSTEMS NV

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