Reduce the cost of mission-critical communications networks for on-time, safe and connected highway journeys

Use case

Nokia helps highway agencies and departments of transportation to enable operational efficiency for safe, on-time and connected highway journeys through a single, intelligent, multiservice and ultra-broadband network architecture for all communications needs of an Intelligent Transportation System (ITS). The Nokia mission-critical solution for intelligent highways has significant technical and cost advantages over other communications solutions. Nokia has a proven track record with reference deployments of communications networks supporting ITS around the globe.
Challenges

Highway agencies and departments of transportation are responsible for operating, maintaining and improving highway infrastructures. To increase the efficiency of highways, many agencies are deploying new ITS solutions, which include roadside equipment interconnected to central traffic management systems. These systems reduce congestion and pollution and enhance safety and security.

Often a highway’s communications infrastructure is a legacy of ITS growth with a patchwork of many voice, video and data networks operating in parallel, with limited interconnectivity and high maintenance costs. Traditionally, communications networks for highways have utilized different communications technologies such as SDH, SONET or TDM. Now, many ITS services are IP-based and are much more demanding. Each of these services has a unique set of requirements in terms of bandwidth, quality of service (QoS) and availability. Today’s highway communications infrastructure often lacks the ability to optimize the use of networks resources and the capability to react to network events fast enough to guarantee end-to-end bandwidth, QoS and availability of each service.

How we help you

Nokia offers a single, intelligent, multiservice, ultra-broadband and mission-critical network architecture for all communications needs of an ITS, providing real-time multimedia communications between traffic management system and roadside equipment, vehicles, travelers, roadside workers and all highway stakeholders. The Nokia mission-critical solution for intelligent highways leverages the IP/MPLS, optics and microwave portfolio, Passive Optical LAN, and is complemented with the LTE-4G and Wi-Fi portfolio, as well as a full range of network services.

Figure 1. Enabling operational efficiency for on-time, safe and connected highway journeys with one intelligent mission-critical communications network for highways
How our approach changes the game

The Nokia mission-critical solution for intelligent highways enables highway agencies and departments of transportation to support all communications needs of an ITS over a single network infrastructure with several compelling advantages over other communications solutions:

• Safe and smooth migration path from older technologies to MPLS, supporting both IP-based and legacy-based roadside equipment, from 1970s weather stations to new-generation CCTV cameras

• Seamless support for multiple critical services such as voice from emergency roadside telephones, as well as less critical services such as data from roadside sensors with configurable service parameters according to the unique operational requirements of each ITS service in terms of bandwidth, QoS and availability

• Greater network capacity enabling data analytics in real time for all video, voice, data traffic and performance to support high-bandwidth services, such as networked CCTV and data center interconnection

• High availability and network resiliency through fast path restoration and network reconvergence within 50 ms to minimize interruption of ITS services during network failures

• Cyber attack protection with a wide range of embedded security features, such as Network Access Control (NAC), encryption and traffic anomaly detection

• Unified network management platform with a set of simple and effective management tools that provide easy configuration and control of the network, and effective problem isolation and resolutions for day-to-day operation of the whole highway communications network.

Why our approach is different

• Years of relevant highways industry experience
• Expertise in mission-critical networks and in ultra-broadband communications
• Broadest portfolio of telecommunications products and services for highways
• Communications technology innovation with Nokia Bell Labs
How you benefit

With the Nokia mission-critical portfolio, highway agencies and departments of transportation will benefit from a simplified, optimized and future-ready network infrastructure for an ITS:

• Avoiding a highway’s patchwork of fragmented communications networks enables cost-effective ITS operations:
  – Removal of the cost of training requirements and of maintaining a disparate infrastructure of specialized equipment
  – Simplified network operations and minimized network repair downtime leading to improved operational efficiency and reduced TCO

• Through a single network infrastructure allowing interconnectivity of ITS services and greater collaboration between stakeholders: Enabling highway agencies to further reduce congestion and pollution and enhance safety and security

• With a single communications network infrastructure, highway agencies will be able to offer new services that improve the traveler experience and provide carrier services for third parties, generating new revenue streams

• Building a future-ready communications network for highways to expand the network as required and to easily implement new technologies for intelligent highways

Let us help you

With Nokia, you can support all communications needs of an ITS over a single mission-critical network infrastructure for highways, enabling operational efficiency with reduced TCO, while reducing congestion and pollution and enhancing safety and security.

About Nokia

We create the technology to connect the world. Powered by the research and innovation of Nokia Bell Labs, we serve communications service providers, governments, large enterprises and consumers, with the industry’s most complete, end-to-end portfolio of products, services and licensing.

From the enabling infrastructure for 5G and the Internet of Things, to emerging applications in virtual reality and digital health, we are shaping the future of technology to transform the human experience.

Connect with our sales team

Europe and Asia Pacific: +44 203 582 5650 (M-F 08:00 – 16:00 GMT)

United States and Canada: +1 866 231 0264 (M-F 08:00 – 17:00 EST)

Nokia is a registered trademark of Nokia Corporation. Other product and company names mentioned herein may be trademarks or trade names of their respective owners.

Nokia Oyj
Karaportti 3
FI-02610 Espoo
Finland
Tel. +358 (0) 10 44 88 000

Product code: SR1706013115EN (September)

© 2017 Nokia networks.nokia.com