Ribbon's Intelligent Middle Mile

for Smart Cities

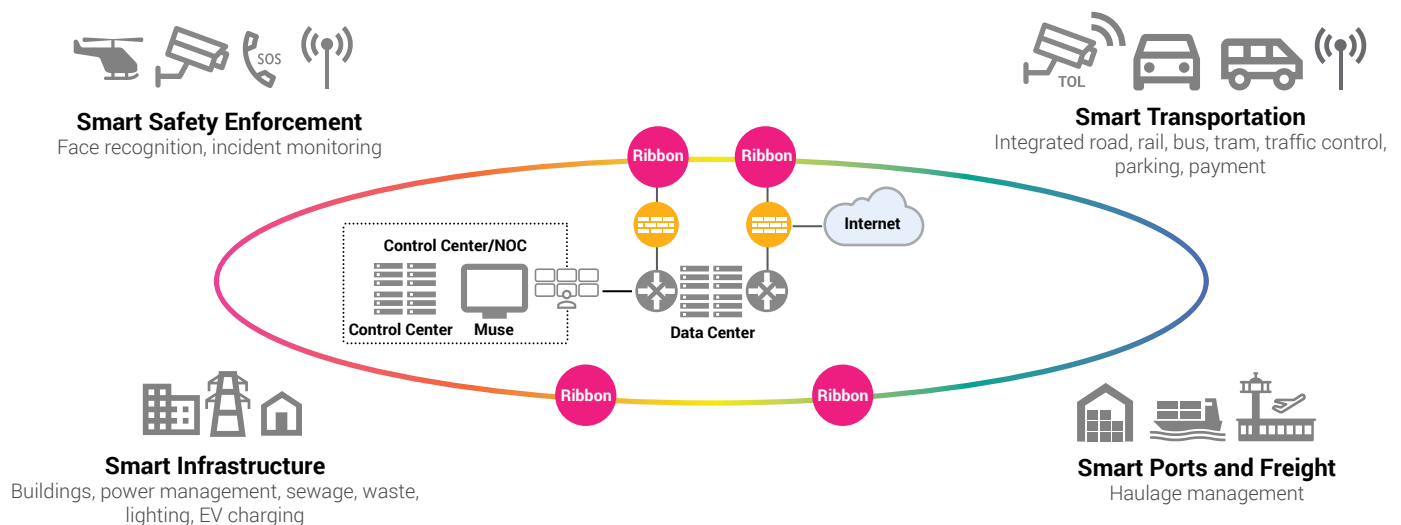## Communications Solutions for a Smart City

For the first time in history, more people live in cities than in rural areas. Cities need to support the growing needs of their inhabitants, while becoming attractive for business investment. To attract such investments, cities need to manage their population, transport, assets, and resources efficiently and in real time. In short, they have to get smart. Becoming smart requires collection and analysis of data from many thousands of sensors across many diverse systems. The knowledge generated must then be shared across each of the systems. This allows intelligent interaction across systems like utilities, parking, transportation, and safety. Ribbon's Intelligent Middle Mile for Smart Cities provides a flexible, future-proof multiservice communication platform ready to support these diverse systems and their rapid evolution. With secure, reliable, real-time connectivity, Ribbon's Intelligent Middle Mile for Smart Cities provides the agile connectivity required to make the smart city work.

Agile Multiservice to support diverse city systems	**Flexible Bandwidth** providing correct capacity wherever needed	**Enhanced Reliability** with advanced hardware and software	**Optimized Solutions** proven end-to-end, tailored solutions

Smart Safety Enforcement
Face recognition, incident monitoring

Smart Transportation
Integrated road, rail, bus, tram, traffic control, parking, payment

Control Center/NOC
Control Center   Muse

Data Center

Internet

Smart Infrastructure
Buildings, power management, sewage, waste, lighting, EV charging

Smart Ports and Freight
Haulage management

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Communications Network for a Smart City

Your Challenges	Our Solutions
Agile multiservice and future-proof	**Extensive multiservice with Multi-stack MPLS, providing transport aggregation for all access technologies, including cellular, WiFi, and fixed:** • MPLS-TP provides deterministic connectivity for mission-critical systems • IP/MPLS provides dynamic connectivity • Risk-free proven integration of legacy systems • Integrated segment routing for smooth evolution of the packet transport • Mobile backhaul for 3G, 4G, 5G cellular, and WiFi access. **Unique features for scalability and expansion:** • Pay-as-you-grow design, in-service expansion units and in-service upgradable packet fabrics • Advanced software and programmable network elements support right-the-first time introduction of new services/resources.
Flexible secure bandwidth	**Scalable high-capacity packet and optical solutions provide capacity when and where it is required:** • Intelligent high-capacity CDC-F optical transport with OTN • Optimized high-capacity multiservice packet transport • Flexible dynamic bandwidth with software defined networking (SDN). **Tailored, holistic cybersecurity:** • Support a comprehensive cyber protection suite built from best-in-class assets • L1 to L3 encryption • L1 optical intrusion detection.
Guaranteed reliability	**Four levels of resilience provide ultra-high availability:** • Equipment: Hardened, fully-redundant network elements meet the needs of an urban environment • Network: Optimized architectures and extensive protection schemes • Management: Advanced software with intuitive operations for rapid fault isolation, increased availability, maximized utilization, and improved efficiency • System disaster recovery: Field-proven processes and procedures keep the network operational.
Optimized solutions	**Ribbon provides an end-to-end solution optimized for Smart Cities:** • Easy integration for best-of-breed 3rd-party equipment • Single Network Management System • Multiservice platform allows network to grow and evolve, as required • Field implementation and support • Extended lifetime.

About Ribbon

Ribbon Communications (Nasdaq: RBBN) delivers communications software, IP and optical networking solutions to service providers, enterprises and critical infrastructure sectors globally. We engage deeply with our customers, helping them modernize their networks for improved competitive positioning and business outcomes in today's smart, always-on and data-hungry world. Our innovative, end-to-end solutions portfolio delivers unparalleled scale, performance, and agility, including core to edge software-centric solutions, cloud-native offers, leading-edge security and analytics tools, along with IP and optical networking solutions for 5G. We maintain a keen focus on our commitments to Environmental, Social and Governance (ESG) matters, offering an annual Sustainability Report to our stakeholders. To learn more about Ribbon visit rbbn.com.

Contact Us   Contact us to learn more about Ribbon solutions.

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