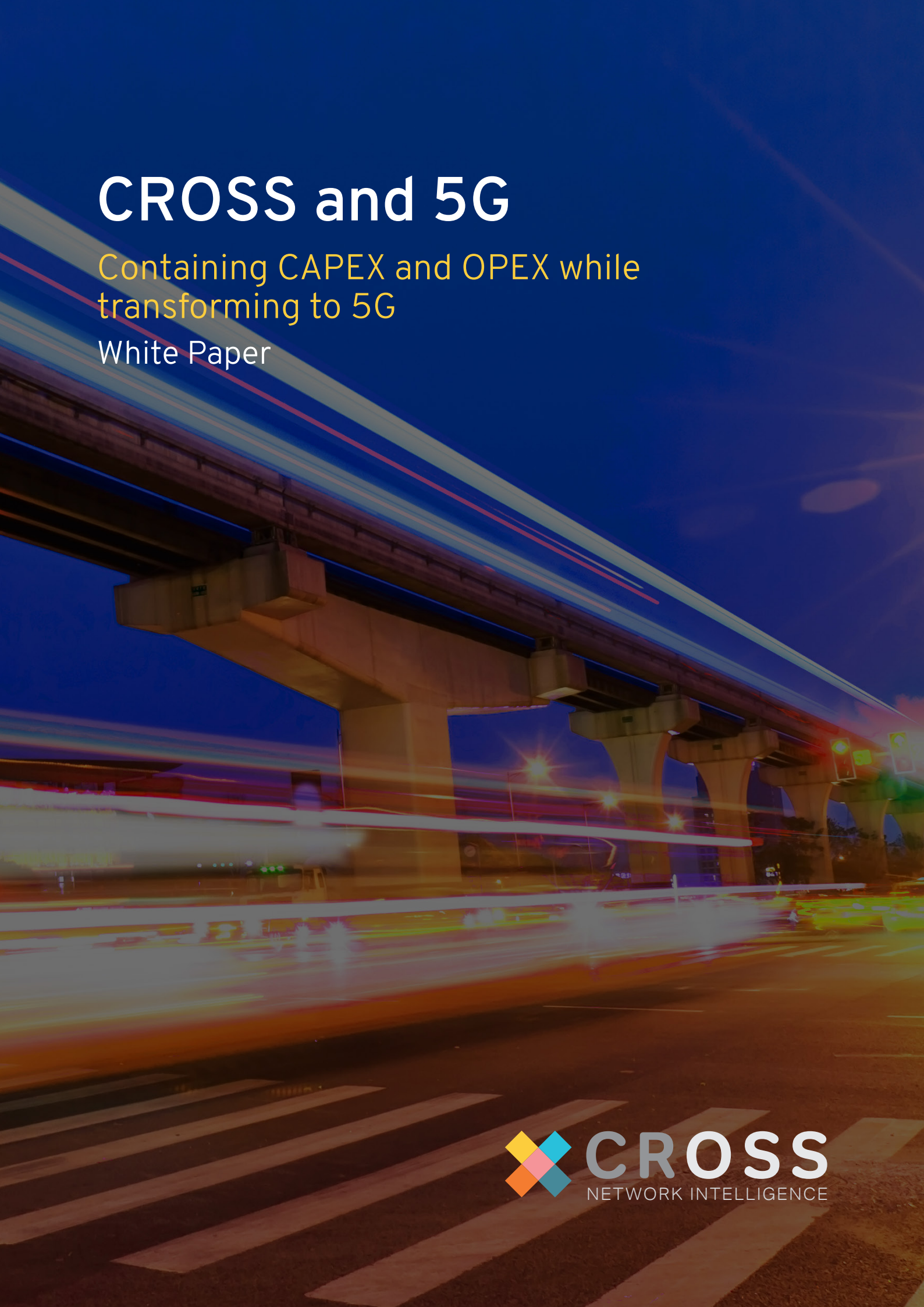

CROSS and 5G

Containing CAPEX and OPEX while transforming to 5G

White Paper

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Table of contents

01
Introduction
5G investment pressures

Today's communications industry is faced with mounting challenges, not least of which is a desire to reduce or constrain operational expenditure. To meet these challenges, consolidating and combining systems has become a clear goal.

The pressure to achieve this is growing, as many telecoms providers are now also investing in new 5G networks. This briefing note explores some of the challenges of 5G deployment and discusses the need for accurate, real-time visibility of inventory and assets.It also shows how CROSS provides an extendable data model that allows MNOs to easily manage an ever-expanding inventory, through the import of data from existing systems, or by creating a dedicated resource and integration with other network assets.

02
Densification and cost management
The importance of accurate inventory data

5G requires a significant increase in the number of cell site deployments in order to achieve coverage with the required performance levels. In addition, it also demands the installation of fiber to each site to provide backhaul capabilities of the capacity and speed required to support 5G services.

This process is known as densification.

As a result of this, the cost of deploying nationwide 5G coverage is expected to be extremely high, putting pressure on MNO budgets and creating uncertain business plans. Never-the-less, national regulators are requiring MNOs to meet coverage obligations.

As a result, modeling and creating new networks with accurate and clean inventory data is a prerequisite.

Most are trying to do so within existing CAPEX budgets, so they must also make savings from operational budgets to ensure flat overall expenditure.

It is expected that increased automation, enhanced efficiency and consolidation of disparate or duplicate resources will help achieve these goals.

The ability to achieve savings through integration with existing BSS and the automation of processes and end-to-end provisioning workflows while retiring redundant or duplicated resources will be essential to this goal.

MNOs that are moving to 5G, and those that are providing fiber backhaul networks have the challenge of managing a dispersed and growing footprint. Managing this fiber rollout with effective GPON / FTTx planning functionality is necessary to ensure that coverage is delivered to all required locations. At the same time, 5G will depend on rapid service activation as well as dynamic service orchestration.

03
Agile service management for 5G
The dynamic use of infrastructure

New subscriptions to both mobile and static devices will need to be activated, efficiently and in real-time. New services must be managed, for the right users and for the right devices.

In addition, many 5G applications will capitalize on edge computing servers, or offload, which means that there will be a great requirement to use infrastructure dynamically at cell sites.

Since many decisions will be taken according to session and context requirements, clear visibility of resource status and availability will be essential. The introduction of dynamic network slicing will also lead to real-time resource allocation and reallocation.

MNOs will also need to deliver services to new business partners across their new networks, as well as to share resources with them.

Locating inventory

In this context, a clear understanding of the physical location of all assets is essential. This location must be correlated with the physical and virtual service resources required for their delivery.

Such knowledge will be fundamental to the ability to deliver core 5G services, such as FWA (Fixed Wireless Access), massive IoT (Internet of Things) and also URLLC (Ultra Reliable Low Latency Communications), as well as the foundational 5G service, eMBB (Enhanced Mobile Broadband).

This is particularly important when considering the density of cell sites required for 5G service performance expectations to be met. Each will need fiber connectivity, which will replace previous microwave or Line of Sight radio deployments.

As such, there is a need for access to assets that can be used to host 5G antennae as well as to route and light fiber for each location.

04
Connecting 5G and fiber
The need for a clear picture of inventory

While some MNOs will build this interconnection infrastructure, many will use third parties to build and manage the fiber networks.

These may be independent fiber operators, or as it has been seen in many countries, utility companies.

Such utility companies may already have extensive network assets, which can be used to facilitate the deployment of fiber – by using existing pipe networks, for example. They may also be used to support new radio sites, as such devices can be positioned on electricity pylons.

These new 5G stakeholders are already building massively increased fiber networks, both to support optical connectivity for their own customers and also to provide the fiber footprint that will be required by MNOs.

CROSS is a single solution that spans multiple use cases. It helps MNOs to roll out 5G networks by providing a single source of truth for all inventory assets. It can provide consolidated inventory for 5G networks, cover legacy infrastructure and encompass new fiber connections.

A further complication is that 5G deployment may also involve novel network sharing models. As such, multiple MNOs in the same country may share resources, or access third-party resources. This will extend the concept of network beyond traditional boundaries and add an additional degree of complexity to inventory management.

Thus, if MNOs are to contain both CAPEX and OPEX budgets, they cannot allow inefficiencies or a lack of understanding of the underlying inventory asset base to undermine such activities.

A clear understanding of inventory, across all resources – physical, logical, virtual and service – and their location is required. It is this problem that CROSS seeks to address. CROSS is designed to provide accurate inventory management in all cases.

This allows MNOs to rapidly locate, provision and manage new services that are deployed in support of 5G, from cell sites, to fiber links and ducts, all the way to virtual resources that are enabled to provide connectivity.

This accelerates deployment and supports the automation that MNOs must adopt to deliver 5G. CROSS helps to ensure costs are effectively managed based on efficient operations and a clear picture of the network.

05
Combining Utility and Telecom inventories
A solution that spans multiple use cases

As CROSS can be used to model any network – telecoms, gas, electricity, water and so on – any other kind of inventory management data can also be added.

This means, for example, that companies that are building new fiber networks can include gas pipelines, or water pipes in the same system, allowing new conduits for fiber to be mapped and included in service planning and delivery activities.

CROSS is a single solution that spans multiple use cases. It helps MNOs to roll out 5G networks by providing a single source of truth for all inventory assets. It can provide consolidated inventory for 5G networks, cover legacy infrastructure and encompass new fiber connections.

It can also assist operators with the delivery of SD-WAN managed services, end-to-end across any network infrastructure. In time, as massive IoT takes off, it can also be extended to provide optimized IoT resource inventory management.

06
Inventory management for 5G transformation
Effective, agile, accurate

MNOs are striving to deploy the next generation of mobile networks – 5G – while constraining costs. They seek to activate a new class of services, with greater agility and greater efficiency.

To do so, they not only need to automate key processes and to connect them for more efficient operations, they must also obtain an accurate picture of all assets and resources available in their networks.

Effective inventory management has become even more critical to helping MNOs to achieve these goals.

As such, there is a need for a modern inventory management solution that provides the accurate data model required.


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