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**T-Mobile One IP Network (MPLS network Installation, rollout and Services migrations)**
**Project Scope: Procurement, build, rollout and services migrations**

**Dates: June 2005 – March 2007 Duration: 21 months**

**Intrascope Team: programme manager, project manager, build manager**

**Introduction**

T-Mobile is one of the World's largest mobile operators with more than 90 million Customers worldwide, in the UK it is the network of choice for approaching 17 million customers. T-Mobile is rapidly expanding its 3G network across the UK to support its aim of being the best data services provider of choice.

In order to keep T-Mobile UK's customer-facing data networks current and scalable it was necessary to invest in new hardware and to replace the three existing T-Mobile UK Gn, Gi and Signalling data networks which were approaching end of life. The impact of any hardware failure had the potential to be a serious risk to the revenues of T-Mobile, the probability of hardware failure was clearly increased by aging equipment. TTM (time to market) of new services and reduced provisioning time for existing services is seen as a key area in which T-Mobile can differentiate itself from competitors and offer improved services to its customers. The three physical networks were to be collapsed into a single MPLS backbone network with multiple logical VPNs a common platform that is capable of supporting both existing and future IP services would enable T-Mobile to rapidly meet new services requirements without the costly design and deployment process that is currently the case. Currently Operations are required to support a variety of different services across Separate physical infrastructures. Collapsing these environments into one single Network had many clear operational business benefits. The support cost of a common platform that carries all IP services related traffic is expected to be significantly decreased as would the deployment cost of services as these become template based in a MPLS / VPN architecture.

**Objectives**

To support future business growth and importantly VOIP, the new platform would have to support multiple classes of service, each with a end-end Quality of Service (QoS) to meet the required SLAS.

In addition to the new architecture T-Mobile UK wanted to incorporate a fully integrated and centrally managed OSS (Operation Service & Support) platform, this would ensure network management platforms would not be duplicated across the network and act as an enabler for the reduced TTM (time to market) requirements. A key consideration for the architecture was the support and migration to IPv6, ATM Over MPLS and VOIP capabilities. The OSS tools required included:

- Automated provisioning and configuration management
- Centralised automated inventory
- Reporting and fault management

The existing Nortel equipment was approaching end-of-life in Q107, it was important that a detailed feasibility study was carried out to ascertain the next generation of equipment to meet T-Mobile UK's growing requirements.

The second phase of the programme required the migration of services from three existing customer networks to the new MPLS backbone (CPCN):

- The Gn network - an trusted network with its primary function to carry GTP tunnels.
- The Gi network - an untrusted network, where any T-Mobile customer has native access to the Gi data network after they have been authenticated and assigned an IP address. the Gi network is the gateway to the Services network that hosts services such as email and Internet access.
- The signalling network - carries real-time traffic that is required in the set up and authentication for customer services.

All in all there would be over 100 data services / platforms that would need migrating

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**T-Mobile CPCN NextGen Expansion**
**Project Scope: Procurement, build, DWDM cutover, existing sites integration**

**Dates: Oct 2008 – June 2009 Duration: 8 months**

**Intrascope Team: programme manager, project manager, build manager**

**Approach**

Intrascope was brought in to manage the end-end delivery of the new MPLS Backbone and migration of services from the old networks.

Phase1 – CPCN (MPLS) build

- Feasibility
- Requirements Specification
- Business Case validation
- OSS Tools evaluation
- RFQ preparation
- Procurement
- Design (MPLS concept and detailed designs, OSS design)
- Test Plan
- Pre-stage Build and Test
- Build Plan (incl. ATM circuit upgrades)
- Build & Test
- Training
- Operational Acceptance

Phase2 – Services Migrations

This was a complex requirement, intrascope used the following process for each of the legacy networks:

- Migration strategy planning
- Equipment audit
- Data flow capture & analysis
- Conceptual design
- Lab testing
- Detailed Design (for each service to be migrated)
- Workpackage creation
- Pre-cabling & firewall changes
- Migrations
- Decommission legacy networks

**Achievements**

T-Mobile achieved its aim of migrating all services to the new MPLS backbone prior to equipment end-of-life vendor support. The efficiency and TTM of the new backbone was immediately realised with the seamless provisioning of the new SMS gateway Service and incorporation of the new OSS toolset.

**Implementation**

The Intrascope programme manager put together a project team consisting of:

- Project Board
- Build Project Manager (incl. site build teams)
- Professional Services Project Manager
- Migration Project Manager
- Transmission Networks
- Operations Integration Project Manager
- Designer

Phase1

The initial stages involved putting together a Requirements Specification following The initial feasibility study. The requirements were formulated in to an RFQ / RFI and offered for tender to a number of vetted suppliers. Intrascope managed this process and the resulting tender analysis. Intrascope then managed the end-end installation and delivery of the new MPLS network. The network was installed according to the T-Mobile 'Gold Standard' for core network installations at Switch sites.