NETWORK SERVICES

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Growth Momentum

The **$41bn** managed services portion of the outsourcing market to grow at CAGR 5% till 2017   - Gartner (2013)

Software-defined networking (SDN) market is expected to reach **$3.7bn** by 2016 - IDC

NPO and SON market is expected to reach **$4.8bn** by 2017- Infonetics

Small cell market to grow 65% by 2014's end, when it will reach **$2.5** billion by 2018 — Infonetics

20bn connected devices to consume **11.2EB** Global mobile data by 2017 - Cisco

By 2015 AT&T plans to deploy more than **40k** small cells in the network.

Industry poised for disruption

PRESENT STATE

- Network MS
  - Physical
  - Heterogeneous
  - Highly Complex
  - Limited choice of MSP's
  - High Capex / Opex

- IT MS
  - Virtualization/Cloud
  - Vendor agnostic

FUTURE STATE

- Network MS
  - Hybrid NW (SDN+NFV)
  - All IP
  - Opens up choices for MSP
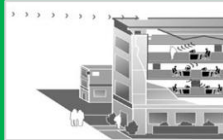
- IT MS
  - Combined with N/W MS
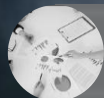
OPEX Pressures

NW Consolidation

Explosion of Data

Ecosystem Disruption

Customer Experience

Power of Network and IT combined…

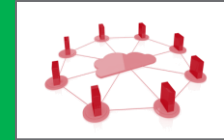| Network Function Virtualization	Small Cells & In-building Solutions	Crowd-sourced Customer Experience Management	Smart Optimization using CEM data	Software Defined Networks	Internet of Things

BUSINESS VIEW

CUSTOMER VIEW

NETWORK VIEW

PROJECT VIEW

Visualize

Report

Automate

Analyse

Organize

Data

BIG DATA

BUSINESS   **SOCIAL**   **CUSTOMER**   **NETWORK**   **FIELD MEASUREMENTS**   **CONNECTED DEVICES**
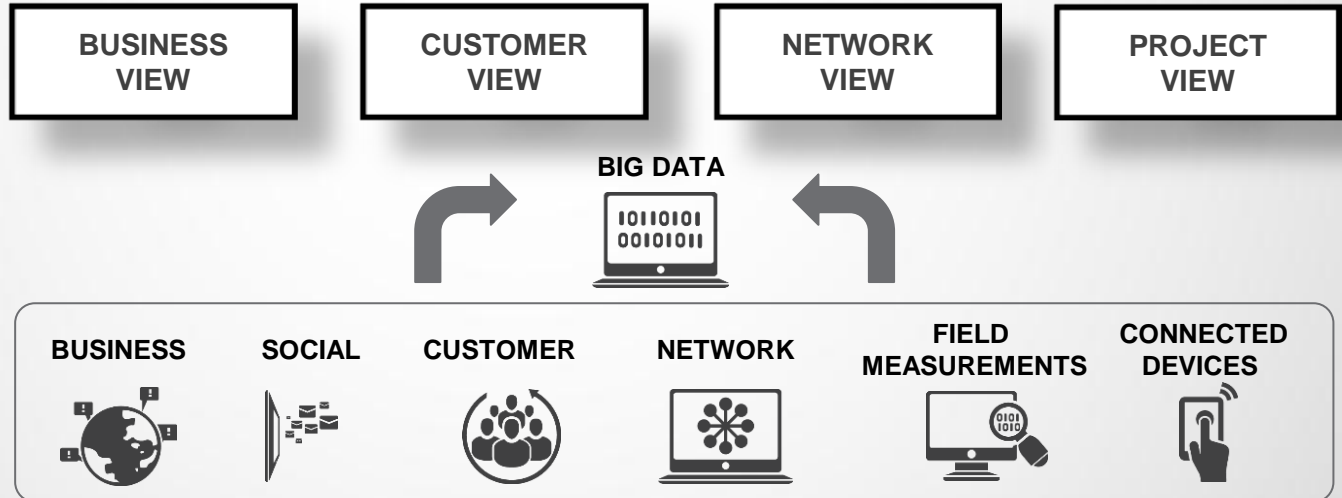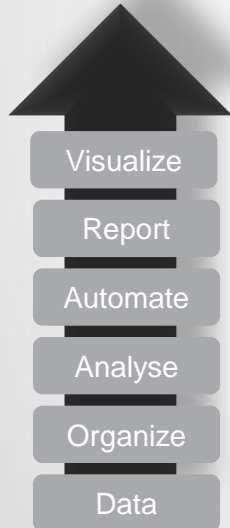
… Enabling TechM to move up the value chain

VALUE CHAIN

TECHM IMPACT

VALUE CHAIN	TECHM IMPACT
E2E Managed Service	Smart OSS, Network Analytics,CEM,SON
Engineering, Performance Core Operations	Global service delivery- Software, processes & tools
Field Operations and Network build	Regional service delivery capability

Focused investments in Network Service

1998 — CoE IN, VoIP, Modeling and Simulation

2005 — Acquired Axes Technologies – Network Engineering

2008 — Setting up a Service Delivery Centre for leading Network OEM out of India

2009 — Delivery of Modular Managed Services & SDC for OEMs

2010 — Tier 1 NA CSP LTE Engagement

2013 — 'BASE' Managed Services; LTE EPC

2014 — Tier 1 UK CSP Managed Service / GNOC
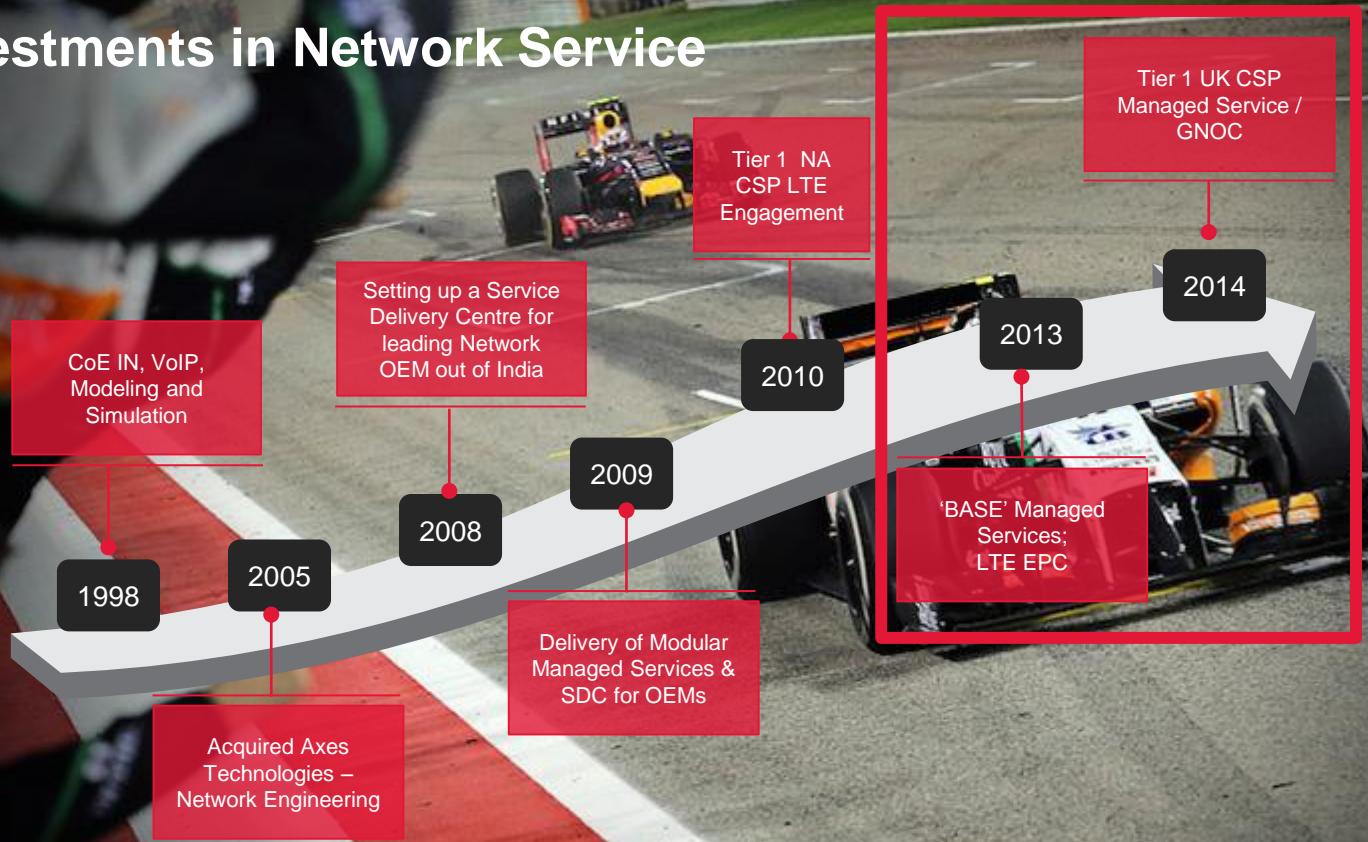
30 years of IT Services Exclusively Focused on Communications Sector

SPARK MS Contract in full swing

"The quality of our network is one of the key pillars in the strategy of BASE Company and Tech Mahindra is working with us to further improve customer experience and expand our network in Belgium. At this moment the transition is fully completed and Tech Mahindra took over the responsibility for monitoring, maintenance and roll out of mobile sites in the BASE network."
- BASE, CTIO

Scope
- Site Acquisitions
- Network Build and upgrades - 3G and 4G
- Network operations across 2G, 3G and 4G networks

Current Status
- Carrier grade GNOC
- GNOC handling ~ 60,000 network alarms per month
- Transitioned L-2 fault management to GNOC.
- Local ecosystem of over 50 sub contracting partners
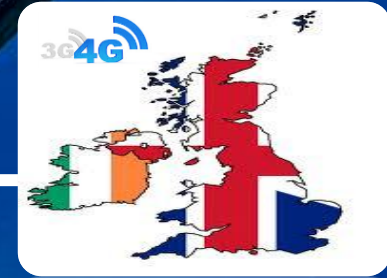- 3G upgrades & LTE build

Reaffirmation of our converged MS strategy (Tier 1 UK CSP)

Scope

- NOC Operations
- Circuit Core, Packet Core, Transport, Security, VAS

Outcomes

- Carrier grade GNOC with Integrated IT
- 24*7 Tier 1 NOC Support
- Products from Huawei, Ceina, ALU, Cisco, Checkpoint, NSN, Samsung, Juniper, Acision

"A successful transfer of the Incumbent MSP's service is a huge achievement and one that you (TechM) should all be very proud of."
- Operations Director (10th April)

LTE Network Validation Partner for US based Tier 1 CSP

Ongoing Engagement since 2009

Test Plan, Design and Execution of mobility infrastructure & services

Over 300 LTE Test Engineers, Planners and Architects

Scope:
- **Platform Engineering**
- **Platform Testing**
- **Services Testing**
- **Test Automation**

Experience across Network elements from both Tier 1 as well as upcoming startups

1st ever calls in lab environment

Voice over LTE call using real network elements

VoLTE to 3G/CSFB

SMSOverIP using VoLTE network

eSRVCC voice handover from 4G to 3G

IR-94 video call

Investments

FixStream

- Acquired majority stake in Fixstream founded by Networking Execs from Silicon Valley

- Built Analytics Product which helps FIX what cannot be seen

- *Analysis of massive amounts of disparate data by **Analyzing, Correlating & Visualizing** everything across Business Processes and Infrastructure for better business outcome - all in a single pane of glass*

Summary

- Network Services a key **growth engine** for the company

- Past systematic investments & experiences with **multi vendor** networks

- **Focussed strategy** & **its execution** showing strong traction

Thank you

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