LTE – Towards Mobile Broadband
Dallas, January 26th, 2009

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New broadband services are driving network evolution
Drivers for 4G – Need to increase ARPU
Enable New Revenue Streams for Wireless Operators

• Consumer Services
  – Wireless Broadband Access
  – Voice-Over-IP
  – Video-On-Demand

• Enterprise Services
  – Wireless Broadband Access
  – Virtual Private Networks (VPN)

• Hosted Services
  – Email and Web Hosting
  – Multimedia Hosting
HSTX 4G Strategy Overview

Customer Network Management
Systems Integration, Deployment & Other Professional Services

Access
- WiMAX & LTE
- GSM/UMTS
- GPRS
- CDMA
- EVDO
- WiFi

Backhaul
- telsima
- harris stratex
- Juniper

Core
- telsima
- harris stratex
- Juniper

WWW

SS
MS
Intel
ODM with Specialized software
Wireless Operator Services Architecture
Complete solution for IP network evolution

### Eclipse Capacity Migration
- 1500 Mbit/s
- 1000 Mbit/s
- 600 Mbit/s
- 300 Mbit/s
  - 100xE1
  - 127xDS1
  - 2xSTM1/OC-3
- 75xE1
  - 84xDS1
  - STM1/OC-3

### Eclipse Feature Migration
- Sync Ethernet
- 1558v2
- PWE3
- IPv6
- Iub & Abis Optimization
- Adaptive Modulation
- Edge PoE ODUs
- L1 Link Aggregation
- VLAN Tagging
- L2 Link Aggregation
- RWPR
- Gigabit Ethernet
- Fast Ethernet
- CCXP/XPIC
- 1st Super PDH
- 1st Nodal Platform

### Eclipse Access Network
- Ethernet - IP/MPLS
- Ethernet - IP/MPLS, PWE3
- Ethernet + TDM
- IP/MPLS, PWE3 or Iub & Abis optimization and IP conversion

### Eclipse Metro and Core Network
- MPLS Core
- Aggregation Hub
- IP/MPLS, PWE3
- RNC
- NMS
- xGSM

Company Presentation - How to use this template
LTE Migration

Access/Edge

Ethernet BS X2 Handoff

MPLS-TP BS X2 Handoff

Core Network

Ethernet aggregation

SAE GW

MPLS core

MGW

MPLS protected Ring

Company Presentation - How to use this template
Wireless Backhaul Works

- **Low initial investment** – pay only for capacity that you need
- **Scalable** – additional capacity, minimal cost, software enabled
- **Reliable** – Fiber-like reliability (>99.999% system availability) and resilient network options
- **Proven** – millions of base stations connected by wireless worldwide
- **Future-Proof** – supporting smooth migration to all-Ethernet/IP transport
Backhaul Evolution for LTE migration

- Flat architecture – IP from core to edge
- Higher Capacity to cater to 2G/2.5G/3G/LTE
- Mixed mode backhaul – carry TDM and IP traffic
- Adaptive optimization – Maximum bits/Hertz
  - Optimize TDM backhaul (Abis optimization)
  - Adaptive modulation
- Tight integration between backhaul, access and core network
  - Base Station and Core adapt to backhaul condition
  - Access network can provide better QOS
  - Reassign resources  SLA