Cisco/Starent Solutions for Mobile Internet
Next generation networks

Sergei Gotchev MITG SE
“One Network, Any G, Any Screen”

Cisco Mobile Internet Technology
Shifting environment

1st Wave
Voice-centric
1993

2nd Wave
SMS / Email
Data Augmented
2002

3rd Wave
Multimedia / Video
Mobile Internet
2010
Mobile Internet Market Forecast

By 2014...

3,900% Increase in Mobile Data Traffic from 2009–2014

More Mobile Devices

> 5B devices + M2M

More Mobile Data

Smartphone traffic up 42X

Personalization

Rich Media Apps/Content

Intelligent IP networking

Video = 66% of traffic mix

Global Mobile Data Growing Rapidly

108% CAGR 2009–2014

Investments in intelligence

Current CapEx Spend

Traditional Services
80-90%

Mobile Internet
10-20%

Mobile Internet is Future Profitability Engine
Optimization

Intelligent IP Network

Functions Integration (in-Line DPI)

Traffic Optimization Protocol Data/Video

IP Core

IP RAN

IP Core

DC

DC

DC

DC

Traffic Optimization Protocol Data/Video

Web Optimization TCP Optimization HTTP Optimization

Policy Rules & Enforcement

Increase network efficiency and enhance customer experience
Move data traffic off capacity-limited radio access networks
Significantly lower the costs of radio and backhaul

Profitability = \( f \) Revenue = Monetization
CapEx + OpEx = Optimization
Monetizing The Networks

The differentiator is the intelligence

Access Awareness
Device Awareness
Session State Awareness
Location Awareness
Usage Visibility
Mobility Control
Operators Differentiation

Customer Intelligence

- Application
- Device
- Service
- Usage
- Time
- Roaming Location, Presence

Network Intelligence

- Service/Application Delivery
- Bandwidth, QoS, Security
- Filtering, Caching, & Ad Insertion
- Cloud Services
- Multimedia Mobile Network
- Policy Control
- Session Info
- Roaming/Handover

Mobile Operator has Unique Differentiation versus Over the Top Players
Baseline for Monetization

Cisco ASR 5000
SGSN / MME / SGW

Cisco ASR 5000
GGSN / PCEF/PCRF / PGW
In-Line Services

IMS
Internet
Corporate

2G/3G, LTE, WiFi, Femto

Cell site
RAN Backhaul
Carrier Edge
Packet Core
In-Line Services
Intelligent Management

Ad Insertion
App Detection and Optimization
Enhanced Charging
Deep Packet Inspection

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Cisco in-house PCRF Solution

- Intelligent Policy Control Function (IPCF)
- PCRF software application on ASR5000 hardware
- Standalone or Collocated with gateway service on ASR5000 (like GGSN, PGW, HA...)
- Use Case policy programming via Policy Configuration Tool
- Subscriber Service Controller (SSC)
- Intelligent SPR sw application on IBM BladeCentre hw
- Hosts SPR / Database function
- Centralised PCRF application engine, complementing IPCF
- Event Notification module (SMS, Email, ..)
- Policy Events and Stats Manager
- service statistics, service logs, counters.

Policy Provisioning Tool (PPT)
In-line Services

- Cisco Mobile Internet Technology is unique in offering in-line services
- Allows you to manage your network & services by enterprise, subscriber & even per application – all in real-time
- Allows you to eliminate external lower-reliability element
- Simplify network through integrated functions and services
- Simpler manageability
- Fewer points of configuration
- Consolidated accounting and billing
- Increased network efficiency IPCEF
Mobility Unified Reporting

Optimize Network Performance
Target New Services
Plan Infrastructure Investments

Cisco ASR 5000
3GPP LTE SAE

• SAE: System Architecture Evolution
  This is the evolution of the RAN and the Packet Core to support:
  Evolved Radio Access Technologies from:
  3GPP: LTE (aka 4G)
  Non-3GPP: WiMAX, UMB, WiLAN etc.

• LTE: Long Term Evolution
  This is the evolution of the Radio Access Technology from 3GPP
  This is OFDMA based (similar to UMB and WiMAX)
  Peak data rate per 20 MHz radio channel \(~100\text{Mbps}\) in the Down Link and \(~50\text{ Mbps}\) in the Up Link
  Average data rate per in the DL: 50 Mbps
Intra 3GPP mobility (intra SGSN, MME, SGW & PGW, inter SGSN, SGW and MME)
S4 SGSN (Release 8) and Gn/Gp (Pre-Release 8) SGSN handover
S11 interface enabling independent distribution of MME and SGW (optional)
S4/Gn/Gp interface enabling independent distribution of MME and SGSN (optional)
S5/S8 interface enabling independent distribution of SGW and PGW (optional)
Intra technology Interworking (LTE <-> Trusted/Non-trusted non-3GPP), PMIP and DSMIPv6
SGW Pooling/Overlapping Service Area, MME pooling
Migration to LTE/SAE

3G
- SGSN
- GGSN
- PDSN
- PDG
- Home Agent

SAE
- MME
- SGW
- HSGW
- PGW/ w ePDG (option)

- All functional blocks available on the same platform today
- SAE/NGMN grade performance
  - Signalling
  - Throughput
  - Latency
- Multi access by nature
  - UMTS
  - WiMAX
  - WiFi
  - eHRPD
- Already proven 4G capability through WiMAX
LTE Market Momentum

• Market trials
  • Over 20 engagements in North America, China & Western & Central Europe
  • Active membership in LSTI
  • Demonstrated IMS controlled VoIP calling at MSF GMI Plugfest in Q2
  • Exhibited at Shanghai World Expo in May
  • Demonstrated UMTS/LTE Call Hand-Offs at MWC Barcelona in February
  • PSCore for first successful LTE call in South Africa

• Customer References

• Unannounced Wins:
  • 3G + LTE: Tier 1 North American cable MSO
  • E-HRPD: North American satellite operator

• Shipped first production release since December 2009
  ➢ Including HSGW, MME, SGW and PDN GW
  ➢ PMIPv6-to-GTP or PMIPv6 to PMIPv6 S2a-to-S5 inter-working
Monetization Use Cases

- Tiered Services
- Parental Control
- Subscriber Firewall
- Family Mobile Plans
- Turbo Boost
- Business/Personal Split
- Data Roaming Management
- Toll-Free Internet
- Application Stores
- M2M
- Content Provider
Cisco Expo
2010
Thank you.
Registrujte se za Cisco Live Networkers u Londonu ili Bahreinu!
Više informacija na:
http://www.ciscolive.com/