Femto Forum Workshop

Femto Forum	• Chair - Simon Saunders
WG1 Market and Promotion	• Chair - Rupert Baines (Picochip) & Vice-chair - Andy Tiller (ip.access)
WG2 RF & Physical Layer	• Co-chairs - Nick Johnson (ip.access) & Pete Keevill (Ubiquisys)
WG3 Network & Interoperation	• Chair - Chris Fenton (Telefonica-O2) & Vice-chair Andrea Giustina (Ubiquisys)
WG4 Regulatory	• Chair - Simon Saunders (Femto Forum)

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What are Femtocells?

- Low-power domestic access points…
  - …using mature mobile technology
  - …in licensed spectrum
  - …generating coverage and capacity
  - …over internet-grade backhaul
  - …at low prices
  - …with full operator management

Generic Femto Network Architecture

Femto Value Chain

- Opportunities for all

Femto Value Chain

Members

- As announced in November: span all elements of the value chain
- ~25% more since then

The need for a common approach

- Femtocells represent a fast-growing opportunity, with great scope for a competitive and dynamic market
- But there are challenges, on many of which a common approach is helpful
- This will help to gain rapid acceptance and address barriers to growth

"Mobile operators should be involved in the development of standardised solutions for network integration."

Analysys Research 2007

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Introducing The Femto Forum

- A not-for-profit membership organisation, founded to promote femtocell deployment worldwide
- Launched 2nd July 2007

"The introduction of open standards will be critical in enabling an economy of scale that will better enable the OEM and semiconductor communities to meet very aggressive price points and stimulate the market. The Femto Forum provides the ideal vehicle for driving this process."

Stuart Carlaw,

Principal Analyst, ABI Research,

The Femto Forum

- Independent
  - Technology agnostic
- Inclusive
  - Licensed mobile operators
  - Vendors of femtocell technology
- International

Accelerating femtocell maturity

In order to achieve the full potential of femtocells, the whole industry needs to work as a **TEAM**

Forming
Coming together

Storming
Discussion, argument, getting to know & trust each other, agreeing what we need to do

Norming
Defining standards
Regulation

Standards bodies
Regulators

Performing
Real world experience & discovery of new issues

The real world

Femto Forum

Femto Forum

Forum Organisation

- Members - licensed operators or providers of technology
- Agenda formed by members via WGs and plenaries and voted by board where necessary
- Budget agreed by board based on available funds
- Work programme within budget according to agenda
- Voting by Full and Board members: but always seek consensus

Executive Board Members

Plus one more licensed operator

Roles :

- Set and monitor Forum organisation
- Create & maintain strategic direction based on member views
- Ensure budget is deployed according to priorities set by members

Approach to Standards

- Femto Forum is *not* a standards body
- Driving forward standards which are *fast* and *appropriate* while facilitating the *innovation* which started the industry
- Encouraging informed, mature, consensus-based contributions to standards bodies by members via their existing memberships

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Working Groups

WG1- Market & Promotion: Objectives

- Promote the concepts of femtocells to consumers, carriers and other interested parties
- Support other working groups with market inputs and requirements

WG1 - Market and Promotion: Activities

- Specifying detailed use cases for application in other groups, including wide range of potential customer propositions
- Providing information of general interest (e.g. 'Femtocells and Health' brochure)
- Setting a programme of promotional activities to broaden knowledge of femtocells and of the Forum's progress
- Identifying key market challenges and proactively addressing these ahead of time
- Specifying key areas of market research

Meet Sally & Tom

- Live together in an apartment in London
- Social butterflies…

Life's a party and my phone is the ticket - spontaneity rules… who wants to fire up the PC?

Facebook & MySpace; chat; text; music downloads; sharing YouTube videos…

Sally & Tom's ground-floor apartment

Why Sally & Tom want a femtocell

- Without femtocell
  - "The laptop is okay for chatting to my friends online, but using it to organise my life is too slow."
  - "I want to check my Facebook page instantly and check out that YouTube link without the hassle of booting my PC."
  - "I use my phone for this stuff when I'm outside, but it's really slow at home for some reason. When I do get through, the quality is lousy."
- With femtocell
  - "That's what I like: fast video downloads, instant messaging and perfect quality."
  - "Now I can dip in to YouTube and Facebook any time from any room. I'd love this thing even if it didn't save me money."

WG2 Radio & Physical Layer

- WG2 enables, coordinates and publishes technically expert contributions related narrowly or broadly to the Radio and Radio Physical Layer
  - reduces technical risk and uncertainty in non- or pre-competitive areas
  - discovering and publishing technical best practice
  - improving understanding of femtocell challenges and removing technical barriers to acceptance and growth
  - improving the performance of the femtocell system as a system
  - preparing for new femtocell technology introductions such as NGMN and beyond

Activities

- RF Environmental Awareness
  - develop use cases, KPIs and document solution detail
  - evaluate solutions against those KPIs
- Femtocell Classes (with WG3)
  - decide if the concept has value to customers,
  - then detail it, and how it may be implemented
- Indoor RF Propagation
  - comprehensive survey of in-building propagation phenomena
  - agreeing parameters for simulation and evaluation of real-world performance
- Cooperative Approach to RR Parameter Design
  - simulations and investigation
  - best practice white-paper to be produced
- RF Propagation and Interference Scenarios
  - use cases guided by WG1
  - public white paper to be created

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WG3 Network & Interoperation

WG3 Current Activities

Network Requirements

OSS/BSS Requirements & Evolution

Interoperability Testing

E2E Security

Architecture Evolution

Device Management

Reference Functional Femto Architecture

Hot Topics:

- Mobility
- End-to-end Security
- Quality of Service management
- Home indication
- Emergency calls
- Location retrieval/locking
- Cell-ID management
- …

… driving voluntary consensus

WG4 - Regulatory: Objectives

- To identify the regulatory requirements and drivers for efficient femtocell deployment and operation
- To raise the understanding of the value (society, consumer and supplier) of femtocells amongst regulators
- To maintain a register of regulatory status in markets of primary interest to members
- To determine regulatory constraints in relevant markets and work with regulators to remove these

WG4 Regulatory Activities

- Identifying the economic and social benefits of femtos
  - Inclusion, spectrum efficiency, access to services, economic efficiency, competition
- Identified various *potential* regulatory issues
  - Mostly find that femtocells, as a fully managed part of licensed operator networks, create few new regulatory issues
- Collecting and collating regulatory status and relevant requirements
  - Providing members with clarity as to the best markets to focus on vs. those where regulatory progress is needed
  - Provides a basis for spreading regulatory best practice
- Creating a briefing for regulators
  - Clarify regulatory benefits
  - Gathering feedback from regulators

Why join the Femto Forum?

- A representative, inclusive organisation, providing an aggregated view of the whole industry
- Connect with customers and suppliers rapidly and efficiently
- Gain from the experience and innovation of the key players
- Define and shape the industry

Next Meetings

4th plenary	• Hilton Munich City, March 4-6th
Femto Forum Asia Summit	• Hong Kong, March 10th
5th plenary	• London Heathrow, June 23rd – 25th
6th plenary	• Asia, Q3

- Plenary and WG meetings open only to members or invited guests

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