# P2P beyond Voice
## P2P has other business cases than telephony

**SIEMENS**

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## Objectives of this session

**Recent P2P deals created a lot of rumors!**

- **What is their real business case**

- **Why?**

- **Where are the opportunities?**

- **You are invited to think about this**
  … so we can leverage on that

We focus on Business-case related things to save time

## Content
## P2P has other business cases than telephony

**Recent development**

- Overheard at VoN and recent discussions
  … P2P and other topics

  - Talks about the recent P2P deal

  - Assets of a Skype (P2P) Network

  - Other Players

**There are Opportunities**

- Migration of Function, Cost and Price

- New Pricing Model; free Voice for Marketing

- P2P and Trust and Content and Micro-Payment and CPEs

- Communities are the tool of the trade

# Overheared at VoN

- **Forget VoIP - Access is the Issue**

- **Network Independent Services**

- **Session Border Controllers**

- **P2P Services**
  **Will they become the Softswitch in the CPE?**

- **Skype vs. other P2P approaches**

- **Legal intercept**
  The Incumbents excuse to deploy legacy - will fade away!

**History of the Skype deal**

| | |
|---|---|
| **Skype tries to sell itself and hires Morgan Stanley** | **Spring 05** |
| **Murdoch tries to buy Skype for $3 Billion** | **July 05** |
| **Carriers shall buy Skype** <br> Several telcos, cellcos and cablecos were in the game <br> Vonage broke the seal and they left. | **Aug 05** |
| **Ebay takes over Skype for** <br> $1.3 billion in cash and $1.3 billion in stock <br> $1.3 in two Years if certain targets are met | **Sep/12 05** |

Sources: Om Malik, Jef Pulver, David Isenberg etc.

- **Price per user is estimated at about $150**
  For $2.6 Billion this adds up to about 17,5 Mio (active) users
  This is about 1/10th of the costs per user in a TDM system

- **However, this can not be all**
  Skype users need access too!   So is the price per user $150 + $1500?

- **Skype is a Network-Independent-Service**
  Regardless of the network operator, Skype runs on any IP network.

- **Provides multiple services**
  Authentication, Authorization, Encryption, Micro-billing, Transport,
  Presence, Messaging, Secure-File-Transfer, etc.

- **Has a free marketing tool that replaces busloads of people**
  Free phone-calls are the tool to attract aunt Amy.

Sources: Om Malik, Jeff Pulver, David Isenberg etc.

- **Simplicity**
  Install, execute and sign in.

- **NAT & Firewall traversal**
  Almost every gateway can be bypassed

- **Extensibility**
  Easy add-on and backward compatibility

- **Multi platform application**
  Windows XP & CE, Linux

- **Ownership / responsibility of Information storage**
  All, except credentials is stored at the CPE

## Components

- **User Peers**
  Multi Platform Software that runs on Win 2k – XP – CE, Linux

  - Published API to allow Skype being called by other programs

  - Stringent NDAs for Manufacturers of embedded HW

- **Service Peers**
  Seed Servers, Trust Servers, Billing Servers,
  interfaces to external Trust centers

- **Gateway Peers**
  **PSTN & IP** gateways with SIP Interfaces
  Suppliers need to sign tough NDAs to get credentials

- **Trust Information**
  This repository gains value by the number of users,
  sessions handled and deposit made.

- **Micro-Billing**
  The industry has not managed this in the last decade; Skype has it!

- **Encryption**
  Allows secure communication between peers.
  File-Transfer, Information sharing, Content delivery, …

- **Skype-Out;  Dial out feature**
  Allows users to call PSTN;   … deposits are the real value ;-)

- **Skype-In:  Dial-IN feature**
  Users need to rent Dial-In PSTN numbers

- **Carrier Peering**
  With Skype-Out, Skype needed PSTN peering partners
  2002-2003 Skype attracted a number of operators to offload
  PSTN traffic. Now they serve virtually all countries.
  … sometimes they go across borders through PSTN

  Skype-In followed later (currently in about 10 countries).

  - **Franchising business with SIP interconnect gateways**
    Attracts users enough to deposit money

- **Carrier overlay Service**
  First company was Hutchinson (3) in Hong Kong in 2003
  E-plus is the first German company that signed a contract in 2005

- **They provide "Business Groups" / P2P-Centrex?**
  Group features for collaboration and dial-out

- **Gizmo Project**             http://www.gizmoproject.com

  Peer with all major VoIP providers

  Additional features like Location-Maps

  Seek to partner with communities/companies with > 1 Mio users


- **Damaka**                  http://www.damaka.com

  Migrate the "Personal" Softswitch to the users CPE

  Additional features like Whether, Stock quotes etc.

  Keep their partners secret. But they are in Richardson ;-)


- **JaJah**                    http://www.jajah.at

  Interwork with open SIP and Skype

  Additional Features like weather and Video SMS etc.

  Partners Global Crossing, 3United, …

- **Siemens Products**
  - HiPath 1000 P2P;  (Small P2P PABX)
  - Peer things;  (Large P2P System)

- **Siemens Prototypes**
  P2P Database-Applications (RMF), Location-Tracing systems, etc.
  RMF = Resource Management Function

- **Nimcat; (now Avaya)**
  Enterprise P2P communication system
  Siemens-Venture-Capital has / had assets in this company

There are many more, but these are with interesting partnerships
or service-package offerings

- **Skype to Ebay**                                                      **Sept. 05**
  Big bucks for phone-calls?
  … there must be more

- **Nimcat to Avaya**                                                    **Oct. 05**
  Avaya had no stake in SIP - they're a H.323 shop
  With Nimcat, they are in SIP and in P2P at once

- **JaJah to Comcast?**                                                  **? Dec. 05**
  This are rumors at present but could become true quickly
  SIP, SMS, Video and other open interfaces are a good choice for

# There are Opportunities

# With Internet communication various entities migrate

- **Session control migrates to the user endpoint**

    **Thus less intelligence is required for session control**

    - **Central CPUs had 100% spare CPU capacity**

    - **A user with 7 sessions a day now has +1000% spare CPU capacity Wintel and Power Stations likes this ;-)**

    - **Operators need less CPU power and air-conditioning**

    - **Operators have less Session-Control The price for time and distance fades away**

    - **Users store their session context in their Endpoint Operators will not be responsible for loss of information**

    - **Will transport migrate to the user as well? … offload the core, Tier2, and let the user pay!**

- **Services like Content-Servers migrate to the edge of the Network**

  They are just like users with fat pipes

  - Operators can provide such Tier2 services besides transport

  - Operators can provide Bandwidth saving for these Tier 2 providers


- **Users interact with their service providers using any network**

  - Users and Services need independent 3rd parties for trust and billing

  - One network-independent trust provider all services a user needs


- **The resistance to fulfill this opportunities created room for P2P**

  - File, sharing and voice have been their initial playground

  - Now we can go a step further

# In consequence

- **Costs migrate to the edge of the network**

    - Users spend more for CPE, Bandwidth, Power, and Configuration

    - Service providers pay for their equipment and pay for fat pipes

    - Transport operators get income from both sides,
      or provide services themselves

- **Price for network transport decreases**

    - Both sides (server and user) pay

    - New technology allows cheaper access with less control

- **Network independent services like P2P**

    - leveraged on the affordable transport

## New Pricing Model: "Free internal Voice"
## A cheap marketing engine for other services

- **P2P makes users to pay for transport themselves**
    - So why not give internal voice away for free?
    - In exchange, providers get user information, trust and billing
    - This enables advertisement, authorization and billing for other services
    … Gateway, Location, SMS, Data Storage

    BTWY: This is true for all Network-Independent services like sipgate …

- **People see free internal voice as a big saving**
    - This is only true in a package deal!
    Pure PSTN is way cheaper!   … in most countries
    - Smart people use this fact to save on Marketing for their P2P services
    People even call each other on PSTN to advertise P2P  ;-)

- **Time and distance pricing is therefore lost in the long run**
    - Bandwidth, Subscription, and Content will be paid in future
    - likely to different providers

**These systems peer, since their common enemy is the incumbent**

- **Trust is the ultimate user information a provider can handle**
  - It includes **Identity** and **Credentials** to **Authenticate** the user
  - Providers will fight to hold this information at subscription prices

- **Content will be one of the few things a user pays for**
  - Delivered only to trusted users

- **Micro-Billing to get money for Transport, Trust and Content**
  - Micro-Billing must be trustworthy, cheap and service independent
    Only then users and service-providers will use it
  - Skype is the only company that has it so far

- **CPEs will come as Programs and Standalone-Appliances**
  - PC-dependent Client Software will be virtually free (Marketing)
  - Luxury versions of Software that integrates to the workspace will cost
  - A myriad of new standalone-appliances will cost quite some money.

- **Business model for trust services**
  - Free trust to attract users and leverage on other services like billing Remember being holder of this information can be worth the cost!
  - Subscription based trust service based on max-value of transaction
  - Trust services sponsored by service provider(s)

- **Trust is the root to all assertions needed for transactions**
  - Authentication / Identity-, Authorization-, Billing- and Payment- assertion

- **P2P Trust-Service realization options**
  - Service peers (distributed peer servers with function and data)
  - Trust proxy (forwards trust requests to 3rd parties like Verisign)
  - Centralized trust service (old fashioned, expensive, non carrier grade)

  Trust services shall be open to outside users and services!

- **Business model for Micro-Billing services**
    - With the exception of Skype, there is no such system
      that has the potential to bill network independent services
    - Service providers will share their income with the most efficient billing
    - Prepaid systems **reduce the risk for the user**
      and allow additional income on interest
    - All systems discussed over the last 15 years failed except Skype
      They were network bound or way too complex.

- **Various Payment assertions / methods can be used**
    - Prepaid, Credit-Card, Debt-orders

- **P2P Micro-Billing realization options**
    - Service peers (distributed peer servers interfaces to trust, and payment)
    - Centralized payment service

- **Business model for P2P content services**
  - Fact: Users want to have the content they are in demand of
    Music, Video, Documents / News, etc.
  - New: P2P content distribution saves many fat pipes for the content server.
    Users will pay for the majority of the transport.

- **P2P Content-distribution realization options**
  - Centralized content servers distribute to the initial 5 or more users
    all other users receive only decryption keys and references to user-peers
    holding this information already.
  - Content distribution service peers
    They are more distributed and can share load in busy hours

- **Business model for P2P CPEs**
  - CPEs remove the need to run User-Peers on the PC.
  - Users are willing to pay for appliances and thus will pay extra if their SetTop-Box runs P2P applications as well.
  - This is a commodity business with a port * price flavor in the higher priced segment (otherwise they use their PC)

- **P2P CPE realization options**
  - Add on functionality to existing SOHO routers/SetTopBoxes.
  - Individual P2P endpoints like Wireless-Electronic-Paper
    Functions required on such endpoints:
    - BitTorrent or other p2p file transfer software
    - Audio-, Video-clients with DRM
    - local storage to share stored content

- **RSDEVs**                                **http://www.rsdevs.com**
    - PC independent interface to SIP Phones

- **CUPHONE**                          **http://www.cuphone.com/skype/**
    - Skype optimized phone products
    USB Phone, RJ11 to USB Phone Adaptor, Personal Phone Gateway

- **Siemens M34 USB**              **http://www.my-siemens.de**
    - Wireless USB interface to cordless phones

- …

**They most times need a PC**

**Can not interconnect to existing Phone or SIP systems**

## Communities are the tool of the trade

- **No P2P System was successful without building a community!**
  Nimcat was an exception, but who knows them?
- **Communities must be built by the service operator**
  How suppliers like Siemens can build communities?
  - Create a spin-off?
  - Do it within the business?  (independent cannibalizing division …)
  - Engage Operators to do it? (franchising …)
- **Tools and advantages of communities**

  - **The Tools are cheap**
    Web-pages, Web-Forum, Mailing-lists, etc.

  - **Advantages**
    They debug the system for free!
    Assume, a price for testing a single bug is $1000
    Open Manufacturers get > 100 qualified reports per Month
    **This is for free!** and speeds up time to maturity

## Of course you need to run the system on the Net to participate!!!

## References

Besides the references mentioned, there is one you might consider

It holds an 8 Min flash movie on some history of the future

that can give you further Ideas

- **EPIC 2014, by Robin Sloan and Matt Thompson**
  The 'Evolving Personalized Information Construct'
  **http://epic.makingithappen.co.uk/**