Market Trends and Requirements

- Every Call leads to an IN Call
  - Tremendous performance and capacity growth (up to 20-30 mio IN User in large networks)
- 40-50% WAP Terminal penetration (in 2001)
  - WAP brings terminal comfort to IN User
- Voice/Data converged Services
  - New business opportunities (Payment of internet offerings via PrePaid Service)
- Growing System Availability Requirements
  - Unique and High available cluster solutions even for administration components
- GUI's easily to adapt to a variety of different User Roles
  - Fast creation of individual user views and services

IN as connecting link between IT and Telco World?

Overview

- Market Trends and Requirements
- First Step into Wireless Telephony Applications (WTA)
  - Architecture and Concept
  - INXpress@vantage
- Derived personalized WAP-based Applications
  - Use Cases for Service Management
  - WAP and Data Mining
  - Case Study: PrePaid Service
- Evolution towards advanced WTA
- Outlook towards UMTS
- Conclusions
Combining the Strengths of IT and Telco World

- Role-specific Administration Frontend for Operator, Provider, User
- Quick Application Creation (based on Java beans, Servlets and JSP)
- Unique Authorization Profiles/Views necessary (Single SignOn)
- Standard Interfaces to external users (HTML/WML, Corba, SNMP)
- Powerful Interface Plugin concept for integration of complementary and overlapping data structures (e.g. SS7, INAP, CAP, MAP)
- Multi-Platform Capabilities
- Single Image view on data
- Availability until 99.9999 % (non stop), no „single point of failure“
- IT Products: commercial DBMS and parallel cluster technology
  - static # of WAP/Internet users
  - dynamic administration load

What is really asked by Subscribers?

- Use Cases for WAP based Administration: Virtual Private Network
  - Phone Book Retrieval
  - Adjust Call Forwarding/Forwarding/Forwarding (incl. time dependent number translation)
  - Adjust Temporary Call Barring
  - Settings of further Parameters (PIN, Language, Destination Numbers)

- Use Cases for WAP based Administration: PrePaid Service
  - Call, Recharge and Shopping History
  - Recharging Account (Voucher, Credit Card)
  - Location based Info Service, e.g. next Voucher Shop
  - Inclusion of Messaging Box

The answers to these Questions

- Inconvenient and limited PhoneBook capabilities on SIM Card?
- Set Call Diversion via USSD or proprietary Menu display?
- Enter Voucher PIN via DTMF (listen on speaker and enter PIN on keypad)?

  Or

  - Same consistent and easy-to-use Menu on every phone?
  - Context sensitive help?
  - Multiple language support and appropriate icons?

WAP based Service Management provides:
  - Enhanced self-service and usage of features
  - Reduced Administration costs for Operator

How does it work?

Service Description:
The PrePaid-Subscriber wants to be informed about costs of calls
1. Customer pulls up WML page script with history list
2. INXpress @vantage Service Management Application retrieves the requested list
3. INXpress @vantage sends the requested list
4. Customer requests details on a specific call
5. Providing page with complete call details for requested call to the Customer;
   Data are displayed and can be scrolled
**What else can be addressed with IN & WAP**

Offer new Data Mining based services like:
- Customer tailored Charging
- Loyalty bonus and Discount Service
- Happy hour tariffing
in the right moment and to the right person

- Use the data in your network to increase Customer Loyalty

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**First Phase: Download Intelligence to the Client**

Service Description:
The Subcorber wants to handle incoming calls more convenient:
1. IN @vantage downloads via Service Loading a WML Script page to the Subscriber
2. Mr. John setup a Call to B-Party
3. The WML Script Service Logic on the Client is triggered and the Call accepted, rejected, diverted, ...

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**Second Phase: Combined Intelligence on IN and Client**

Service Description:
The Subscriber wants to setup Conference Calls in a convenient way:
1. IN @vantage downloads via Service Loading a new Menu to the Subscriber, including the menu option "Conference Call"
2. Mr. John setup a Call to B-Party
3. IN @vantage initiates a conference call via leg management
4. The conference call is established

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**What comes next?**

- Extensions to WAP browser environment by WTA user agent to enable:
  - access to network events (e.g. incoming call)
  - access to local phone features (e.g. local phone book)
- Provisioning of event handling by user agent and local persistent storage (repository) to enable real-time handling of telephony events
- Introduction of trusted WTA server (controlled by network operator) to enable download of WTA service scripts to client
- Introduction of WTA service indication (based on Push mechanism) to enable initiation of services by the network (e.g. PrePaid Account law)

- Wireless Telephony Applications
**What is required on IN for supporting WTA Services**

- WTA Services and Scenarios like:
  - Call Deflection and Call Screening (IN and Client based)
  - Corporate Phone Book
    - Via Service Loading replicated Client Phonebook
    - Consistent centralized PhoneBook (e.g. for Virtual Private Network Service)
  - Carrier branded and operator specific phone menu
  - Home Zone with client based Icon control
  - Convenient Conference Call Setup
  - "Missed Call" functionality (e.g. in case of not reachable)
  - USSD Call back service
  - ...

→ are just another application on INxpress@vantage!

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**Conclusion**

- WAP combined with IN will be the key service platform to introduce wireless data services.
- The integration of WAP with telephony functions can start today:
  WAP-enabled service management points provide new means of user-friendly and cost-efficient customer care.
- The evolution of WAP towards advanced Wireless Telephony Applications will extend the possibilities for WAP-enabled telephony services in the future.

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**WAP is an enabler for smooth GSM/UMTS service migration**

[Diagram showing GSM and UMTS network coverage and migration process]