

Using Intelligent Agents in New Mobile Applications

*Ian Sugarbroad
Vice-President Wireless Terminals
Northern Telecom*



The Business Opportunity

To Address the Growing User Segments of the Mobile, Residential, and Enterprise Market Seeking A True Personal Communications Device

- **Strong Market Pull Now Evident**
 - Maturing Users
 - Lifestyle Trends
 - Demand for Info Content and Compelling Applications is Evident
- **Enablers in Place**
 - Capable Networks
 - Device Technologies Maturing
 - Good Regulatory Environment
- **Nortel is Uniquely Positioned**
 - Emerging Wireless Business Strengths
 - Enterprise Market Leadership
 - Advanced Network Services Experience
 - Orbitor Design Assets



**We will deliver an
Orbitor family to a
Ready Market**

Business Situation - Network Operators

Mobile Networks

- 2-4 Competitors Per Market
- Growing and Maturing Subscriber Base
- Differentiating to Protect Revenue
- Services Generate Traffic & Loyalty
- Handset Size Limiting Functionality

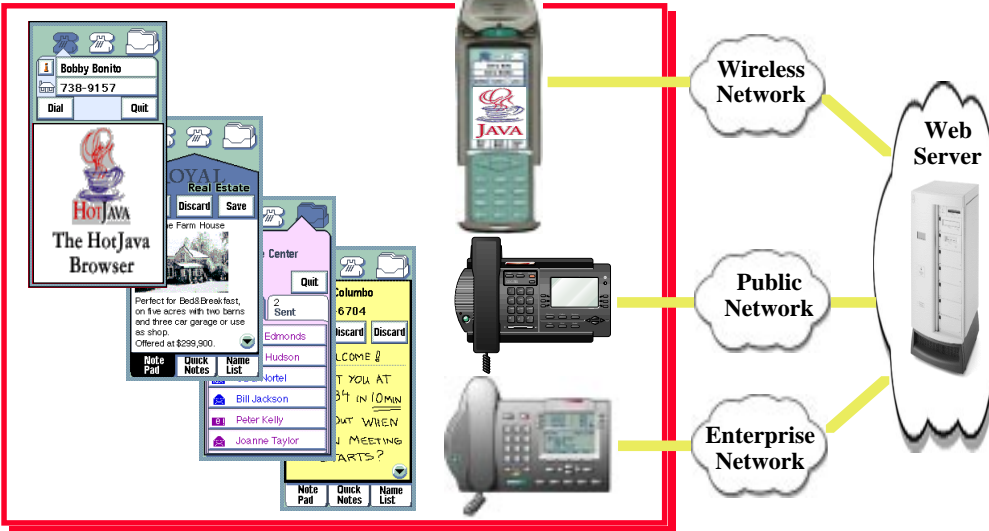
Public Networks

- Competition Beginning
- Need to Create Loyalty
- “Raise the Bar” For Competitors
- Linkage to Info Services
- Internet Revenue Growth

Enterprise Networks

- Corporate Networks Becoming Intranets
- Information Access is a Competitive Advantage
- PC is an Expensive Solution
- “Targeted Searches” and “Closure” Key
- Voice and Data at the Desktop Essential
- CTI Concepts Understood

Orbiter Personal Communicators



HotJava Browser

ROYAL Real Estate

Center

Edmonds

Hudson

Nortel

Bill Jackson

Peter Kelly

Joanne Taylor

Edmonds 6704

WELCOME !!

SEE YOU AT 34 IN 10MIN

OUT WHEN

MEETING STARTS?

Perfect for Bed&Breakfast, on five acres with two barns and three car garage or use as shop. Offered at \$299,900.

2 Sent

Edmonds

Hudson

Nortel

Bill Jackson

Peter Kelly

Joanne Taylor

Edmonds 6704

WELCOME !!

SEE YOU AT 34 IN 10MIN

OUT WHEN

MEETING STARTS?

Market / Business Strategy

- **A Personal Communicator**
 - Communications Centric - Voice, Messaging, Info
 - A High Traffic User's "Next" Phone
- **Solve the User Interface Problem**
- **Provide Simple User Interface to Network Based Services**
- **Internet / Intranet Access**
- **"Applets" and Intelligent agents**
- **World Wide Web "Presence"**
- **Tap 3rd-Party Software - Enable Personalization**

Create the Platform that Enables Market Leadership

Directories, Messaging and Services

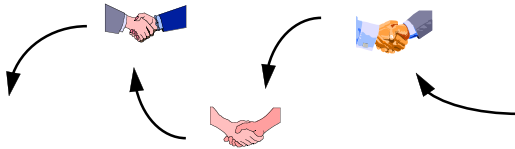
The collage displays several overlapping windows from the Nortel software suite:

- Contact Lists:** Multiple windows showing contact information for Bobby Bonito (738-9157), Dan Columbo (824-6721), and Peter Kelly. One window lists contacts like 'Irene Edmonds', 'Lillian Hudson', and 'Jackson'.
- Messaging Center:** A window titled 'Message Center' showing '2 Sent' messages.
- Service Confirmation:** A 'TravelNorth' window with a purple header, containing a 'Flight Confirmation' message and a 'Thank you for travelling' note.
- Real Estate:** A 'ROYAL Real Estate' window featuring a photo of a house and text: 'Perfect for Bed&Break fast, on five acres with two barns and three car garage or use as shop. Offered at \$299,900.'
- Navigation and Tools:** Various buttons are visible, including 'Dial', 'Quit', 'Discard', 'Save', 'Note Pad', 'Quick Notes', 'Name List', 'Edit', and 'Close'.

Old Paradigm



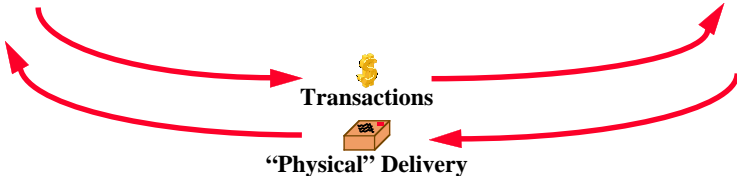
Info Seekers/Buyers
(Each Different)



“Mediators” & “Middlemen”



Sellers
Info Providers
Service Provider

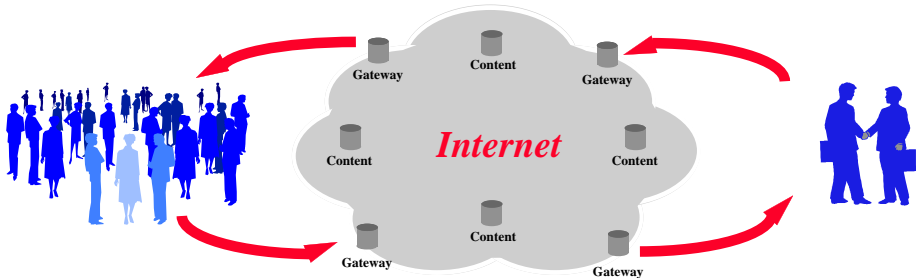


Transactions

“Physical” Delivery

- **Multiple Stages/Real Time Interaction**
- **Hit and Miss Communications**
- **Physical Exchange of Money and Goods**

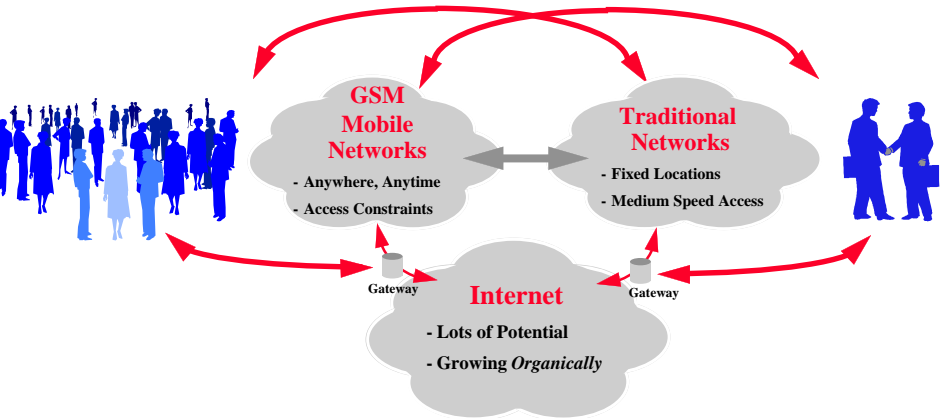
New Paradigm ? (The Internet is Everything)



- **Transaction Based – One Step at a Time**
- **One Way – Must be Initiated**
 - Messages are *Deposited*, Not Delivered
 - A Computer is Needed to *Connect*
- **No Real-Time Element**
- **Could Replace Traditional Networks – But Not Yet !**

Clearly Some Missing Pieces !

New Paradigm ? (Interconnection of Networks)



**All the Pieces - but Disjointed Missing
Personalised Intelligence !**

Solutions for Tomorrow

*“Surfing & Browsing”
is recreational ...*



... but people have real jobs to do

Time is Essential

“Hit and Miss Communications”

- *Workforce Becoming more Mobile*
- *Separate Networks*
- *Many Technologies*



“Targeted Searches”

**Agent-Based
Network Computing**



“Closure”

**Intelligent
GSM-Wireless
Services**

Key Enablers

Access

- **Mobile and Fixed**
- **Multi-Mediums – Reasonable Bandwidth**

Transport

- **Low Cost Bit Carriage**
- **Digital End-to-End**
- **Internet / *Intra* net**

Service Intelligence

- **Client-Server**
- **Intelligent Agents**

**Need to Move Towards
*Connectionless Access and Transport***

Types of Intelligent Agents

- **Personal Agents - User Dispatched**



- **Software *Applets* - Received by Client**



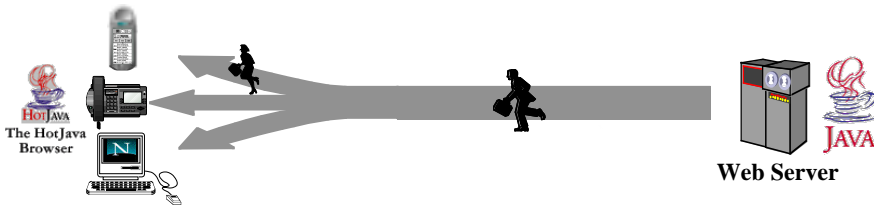
- **Groupware, Management, Mediation Agents**
(generally speaking, do not travel)



Complementary In Function – Early In Development

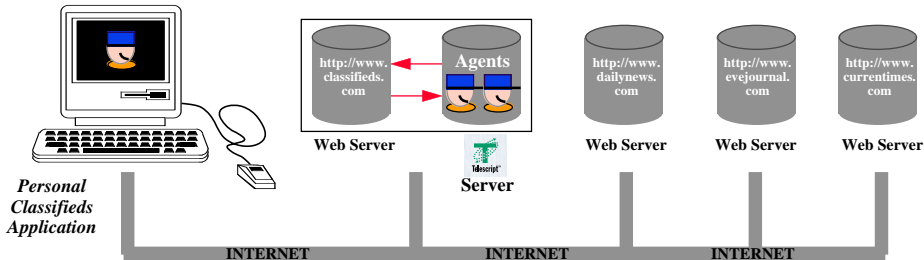


Java Applets



- **Gives Web Pages *Executable* Content**
 - Enables *Interactive Multimedia*
 - The Network holds the Software
- **Server Sends Client the Content and an *Applet***
 - Makes User Device *All Singing - All Dancing*
 - Provides User Interface for Display
- **Java Designed for Mobile Applications**

Applet Dispatched by Server to Run on Client



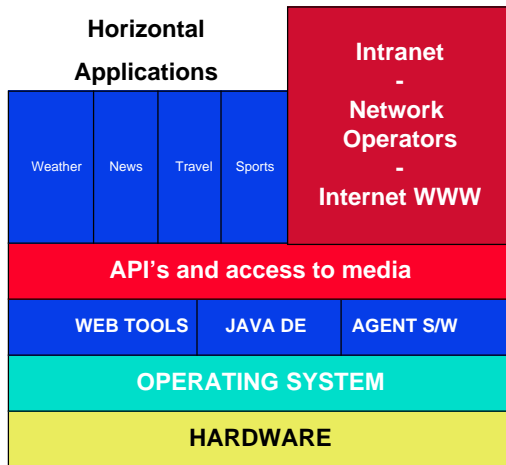
- **A Place for Agents to Interact**
- **Users Post Ads to Buy or Sell**
- **Multiple Site Activity**
 - *Buyers Seeking Sellers*
 - *Sellers Placing Ads*
 - *Agents Visit Appropriate Web Pages*

Communications Closure must Follow a Buyer/Seller Match

World GSM/PCN/PCS Handsets Volumes ('000s) and Sector Types (%)

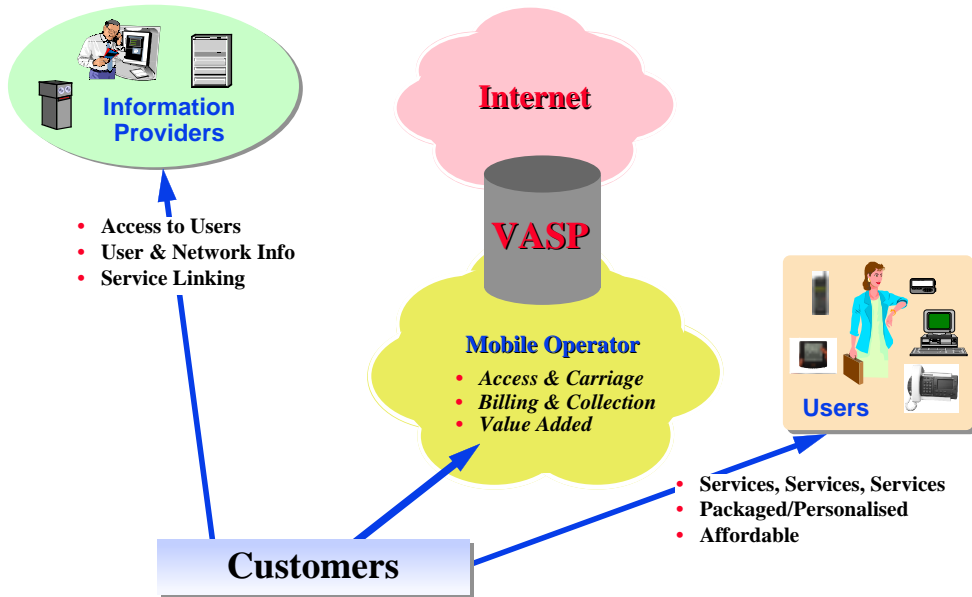
Segment	9 5	9 6	9 7	9 8	9 9	0 0	0 1
V.High	0	100 (1)	900 (5)	1900 (7)	3200 (9)	4000 (10)	5000 (10)
High	2200 (32)	4600 (36)	6500 (33)	8000 (29)	8300 (23)	10000 (18)	12000 (26)
Mid	2600 (36)	5800 (47)	7800 (39)	8300 (30)	8600 (25)	8500 (18)	10000 (23)
Low	2100 (31)	2000 (31)	4500 (23)	4900 (34)	15100 (43)	24500 (53)	19000 (41)
Total Year	7.0M	12.4M	19.8M	27.6M	36.0M	46.2M	46M
Total (Cum)	10M	23M	42M	70M	106M	152M	198M

- **Market accelerates in 1997**
- **Other mobile technologies are incremental**
- **Oribtor type terminals can achieve 15% of high & very high segments**



Four distinct customer groups for JAVA developers.

Opportunities for Developers



Orbitor as a Services Platform

- **Basic Feature Set**



- Easy to Set Up and Use – Intuitive UI
(Set-Up “Control Panels”, Context Sensitive Buttons, On-Board Help)
- Basic Directory with Easy Entry and Access
- Text Messaging and Voice Mail Access
- “CLASS-Type” CLI Features



- **Horizontal Services with Some Third Party Capabilities**



- Unified Messaging (*Voice Mail, E-Mail, Fax, SMS and Ink Messaging*)
- Reading and Sending of Brief E-Mails – Fax Viewing and Manipulation
- Internet and WWW “Presence”
- Support of Third Party Packages (*Headline News, Weather, Sports, Traffic, etc.*)

- **Enterprise and Vertical Applications**



- Meridian 1 User Interface and Mobile Extension (*Meridian Mail/Messaging, etc*)
- Enterprise Specific UI (*eg Airlines, Hospitality, Hotel Guest Rental, Small Business*)
- Specialized Verticals (*eg Field Sales, Real Estate-MLS, Insurance Adjusters*)
- Professionals (*Doctors, Lawyers, Agents, Brokers, etc.*)
- “Roll Your Own” Vertical Applications Toolkit (*Custom Form Builder, Comms Package, etc*)

Three Levels of Software Packages for Orbitor

Applications

- **Multi-Site Visits**
 - **Find and Buy – Comparison Shopping – Bargain Hunting**
 - **Info-Gathering – Mini-Research Project**
 - **News-Watching – Chatter-Watching**
 - **Travel Co-ordination (Least Cost)**
 - **Personal Banking – Financial Management**

- **Combined Information and Communications**
 - **Personal Numbering/Personal Agent**
 - **Multimedia Messaging**
 - **Classified Ads – Seek/Connect/Negotiate/Buy**
 - **Personalised “Real-Time” News**

Organizing For Success

NORTEL

Wireless



**Residential/
Home Office**



Enterprise



**Service
Requirements** →

← **Technology
Delivery**

SUN Server



Focused group of customers

- Network operators (wired & wireless)
- Nortel Global Accounts
- Nortel existing and new distribution channels

**Focused Group of Lead Java
Service Providers**

What does Nortel offer?


Business Partner Program

- **Development Assistance**
 - Tools, documentation and forum for discussions
- **Customer Access**
 - Network operators (wired and wireless)
 - Nortel Global Accounts
- **Forums and trade events for customer meetings**




Who to contact for more information....

Chris Koehncke
Director, Business Development

 **chris.koehncke@nt.com**
(214)-684-2786

Ian Sugarbroad
Vice President

 **ian.sugarbroad@nt.com**
(214)-684-1281