

Managing a Mobile World

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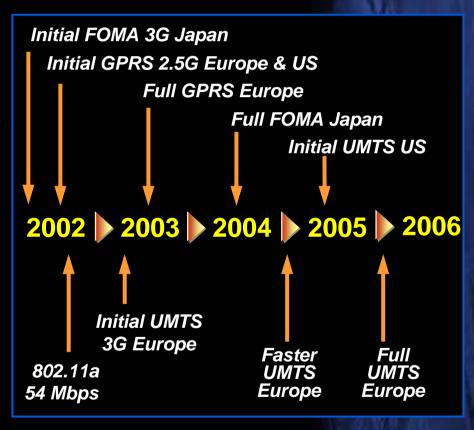
Business and Technology Scenario



Mobile computing

- A business choice, not an IT decision
- Telecommuting requires new IT process
- Distributed offices/workers becoming norm
- Another interaction point
- Mobile-enabled services emerge to expand SLM

Mobile Network Evolution

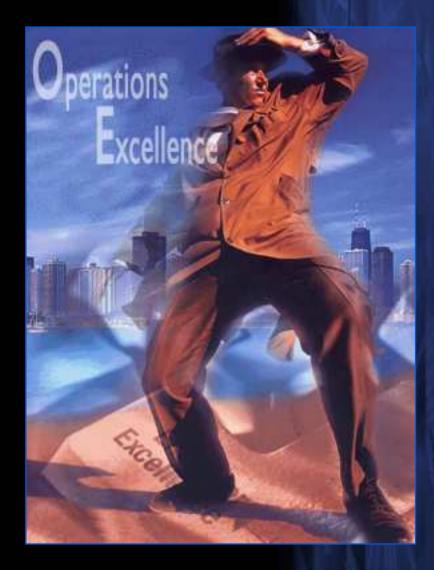


Mobile management is required to understand, measure, and improve the value to the business

Critical Issues



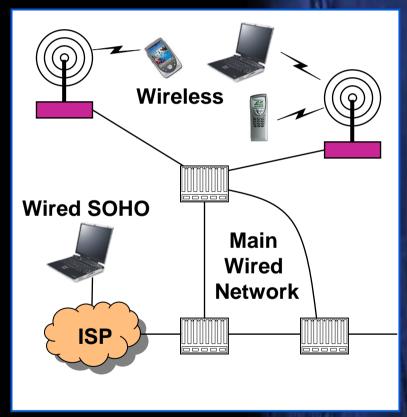
- Assessing the challenges of mobile infrastructure and applications
- Integrating mobile management with existing systems and processes
- Identifying technical, political, and operational maturity trends for mobility



Assessing Mobile Challenges

- Mobile services dynamism
 - Identity, location, and relationships change frequently, but users demand high service levels
- Transport services
 - Multiple providers and transport technologies
- Mobile platforms
 - Weak mgmt. technology will improve by 2003, while number and type of platforms will expand

Mobile Comprises Wireless But Also SOHO & Wired Net



Architect management systems to eventually adapt automatically and quickly to changing mobile services

Mobile Services Dynamism



- Geography, coverage, and transport services
 - Multiple carriers/services
 - Unstable broadband: Cable/DSL
- Security/identity
- Relationships change often
 - Relationships are basic to management systems
 - Asset management needed
- Manage user expectations with realistic SLAs
 - Classes of workers require different responses/tools e.g., road warriors, SOHO

Multidimensional Relationship Management

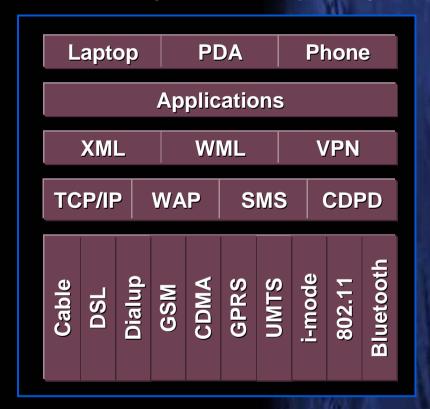


Seek service provider insulation from dynamic effects, but expect few short-term results

Transport Services

- Now primarily wired, eventually dominated by wireless (2005/06)
- 3G wireless is delayed
 - Mitigates hyperbole
 - Time to develop management
- Too many protocols
 - IP, WAP, Bluetooth, DSL, VPN, DOCSIS, GPRS, 802.11, etc.
 - Platform must support several
- **△** No stability until 2006
 - Demand quick ROI
- QoS is key to SOHO productivity
 - Quick recovery on failure

Mobile System Complexity



Standardize short-term transport services and platforms, and plan on long-term changes

Mobile Platforms



- Notebooks growing to 40% (25% in Europe) by 2004/05
- Notebook vs. PDA vs. phone
 - PocketPC 2002 will win the PDA OS war in the enterprise
 - Ignore Blackberry 2-way pagers
 - Will be obsolete in 2 years
- Thin client vs. smart client
 - Limits management agent
 - Application performance vs. management ease
- Wireless presentation differs from fixed platforms
 - Transcoding
 - Throughput and response

Mobile Computing Platforms



Pursue PocketPC 2002 platforms to harmonize with management of existing Windows clients

Assess Mobile Challenges



Bottom Line

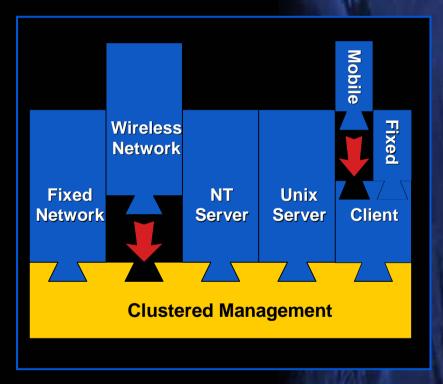
- Seek service provider insulation from dynamic effects, but expect few short-term results
 - Plan for lower mobile service levels in SLAs
- Standardize short-term transport services and platforms, and expect long-term changes
 - Evolve management systems as platforms, services, and management technology matures
- Pursue PocketPC 2002 platforms to simplify services, applications, and management
 - Exploit common attributes with fixed systems

Business Impact: The immaturity of mobile systems will limit management efforts for 3-5 years

Integrating to Existing Management

- Complement enterprise processes
 - Reinventing the management architecture is unnecessary
- Supporting mobile mgmt. with point tools
- Service-level management
 - The difficult, ultimate goal

Modular Management Architecture



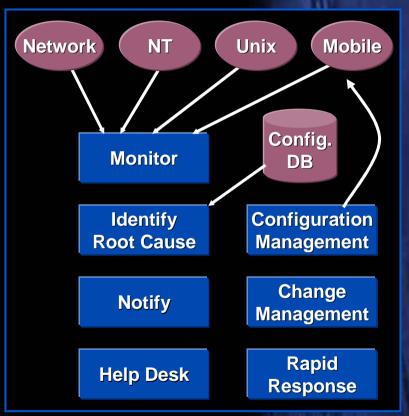
Integrate mobile management into broader efforts to achieve more complete service-level management

Complementing Enterprise Processes



- Mobile represents just another technology silo
 - Clustered management processes remain
 - Integrate like other silos
- Unify incident management
 - Local event generation/ central event aggregation
- Specialize rapid response
 - Mobile and wireless subject-matter experts

Common Management Processes

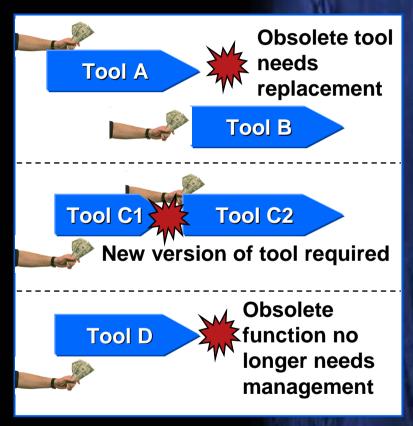


Maintain effective processes across all silos, and augment configuration/diagnosis with point tools

Using Point Tools

- Best current choice
 - Specialized products
 - Larger vendors lagging
- Client management
 - Some discovery/asset management
 - Software distribution
- Plan for quick ROI
 - Short useful life of tools
 - Driven by innovation
- Ultimately integrating into existing management suite

Short Life Compels ROI Demands



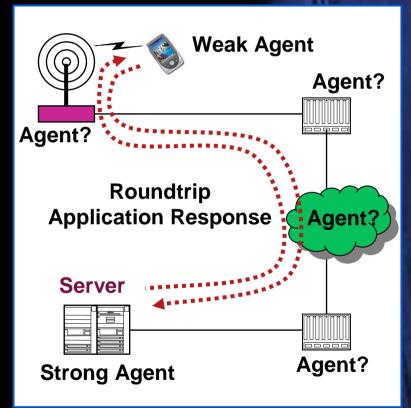
Combine existing tools and processes with specialized point tools for optimum service-level management

Service-Level Management



- Platform maturity needed
 - Strong OS, memory, and communications support
 - PocketPC 2002 is a start
- End-to-end SLM is complicated by multiple service providers
 - Resolve customer ownership ambiguities
- Consider third-party measurement services
- Classes of users = classes of SLM
 - Educate user expectations

End-User Performance Experience



Focus on service-level measurements to normalize common service management across silos

Integrate to Existing Management



Bottom Line

- Use common management processes for efficient operations
 - Reduce or avoid duplication of efforts
- Augment weak, immature agent technology using specialized management point tools
 - Use point solutions now because broader solutions do not yet address many needs of mobile systems
 - Make choices based on quick ROI
- Normalize service-level measurement across silos
 - Processes should be independent of infrastructure, but plan on lower service levels for mobile users

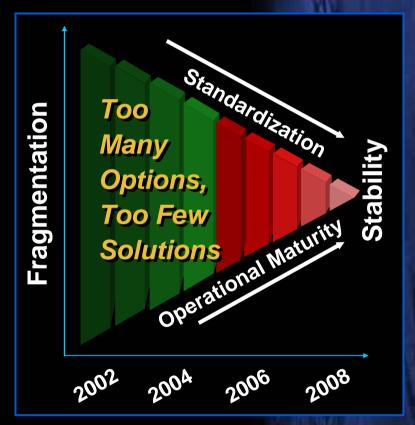
Business Impact: Merging mobile management with other management minimizes operational costs

Identifying Trends for Mobility



- Political and operational maturity trends
- Application management and SLM trends
- Technology trends

The Long Road Ahead



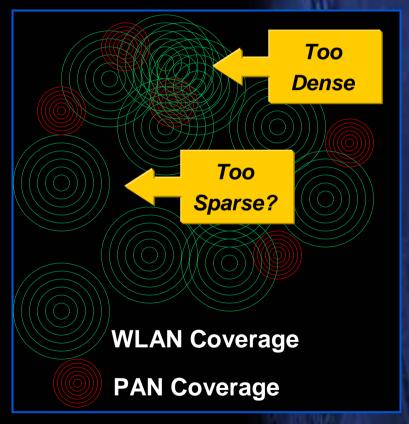
Mobility is just another technology silo, but special short-term political and operational attention is needed

Politics and Operational Maturity



- Security is more important
 - Wireless networks
 - Lost/stolen laptops/PDAs
 - VPN into enterprise net
- Asset management
 - Short platform life cycle
- Remote hardware support
 - Outsource
- User education is critical
 - Security & mgmt. issues

Wireless Capacity Planning

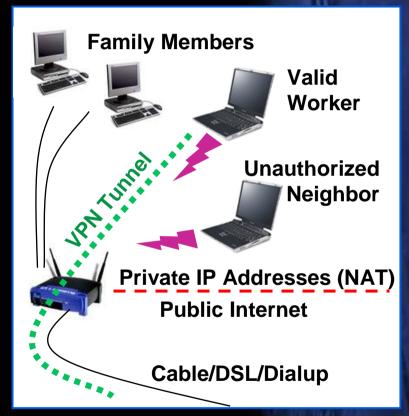


Match services and mobile platforms to user needs, as another aspect of capacity planning and SLM

Applications and Service Levels

- Better tracking of users
 - Track location with GPS
 - Transparent "roaming"
- ▲ Mobile drives smarter apps
 - Enable better end-user service-level metrics
 - Java-based agents (JMX)
- Growing use of service providers for SLM
 - Lots of third-party POPs

SOHO Presents Unique Hard-to-Control Challenges



Address technology shortcomings to accelerate better SLM and application support



Mobile Management Technology

Management Technology	Now (2002)	Near Future (2002/03)	Distant Future (2004-08)
Client agents	Weak/missing except laptops	Limited point tools	Standard for all platforms
Public wireless services	Almost no visibility	Third-party services emerge	Agents and providers will complement third parties
Wireless LAN	Basic SNMP statistics	Congestion & security drive diagnostics	Self-adaptive multiservice networks
Software distribution	Limited	Special products emerging	Common with fixed systems
Service-level management	Almost non- existent	Agents improve, but networks still unpredictable	Similar to fixed systems

Specialized management market will be unstable until common technology emerges after 2004

Identify Trends for Mobility



Bottom Line

- Implement security management now
 - Dominant mobile management issue through 2004
 - Real identity, SOHO, and eavesdropping concerns
- Address capacity planning and asset management
 - Optimize networks and platforms
- Migrate to smarter applications to improve SLM
 - Web services (e.g., JMX) offer good instrumentation
- Expect instability through 2006
 - Platform immaturity and network capacity are the main impediments to parity with fixed systems

Business Impact: Mobile management technology is immature, but plan now to simplify future consolidation

Managing a Mobile World



▲ Transformation Steps

- Expect immature commercial solutions and abundant change through 2006
 - Implement realistic mobile SLAs
 - Plan handheld client migration to PocketPC 2002
- Integrate mobile management with broader efforts
 - Consolidate incident management for all infrastructure and applications
 - Leverage common management processes
- Plan technical, political, and operational directions now despite current lack of solutions
 - Anticipate turbulent evolution early to easily assimilate new developments as they occur