Integrated Network Solutions

Lucent Technologies
Financial Analyst Meeting

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Integrated Network Solutions

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What's Changed At INS?

- We refocused INS efforts to reflect the market environment, to improve near-term financial performance, to meet customer commitments, and to provide targeted future growth opportunities
- We refocused R&D on the clearest, most immediate and most profitable opportunities in our core areas of strength
  - Optical
  - Circuit and packet switching
  - Software
- We retained long-term positioning in other key segments
  - Broadband access
  - Circuit-to-packet
  - Edge access
- We increased investment in critical areas
  - Next-generation multiservice edge
  - Network operations software
- We decided to partner with industry leaders in areas outside our core strengths to bring compelling value to customers



INS Strategy

- Focus on needs of large service providers
  - Maintain direct channel to “Top 50” customers
  - Leverage global business partners to reach others
- Invest in Lucent products/offers that play well across all market scenarios
  - Optical networking
  - Convergence
  - Data networking
  - Network operations software
  - Messaging applications
- Invest wisely in disruptive technologies and those that leverage our installed base
  - MPLS
  - IP Centrex
  - 5E-XC™
  - Softswitch for wireless and next-gen endpoints
  - Multiservice Provisioning Platforms (MSPP)
- Partner where it makes sense to meet customer needs
  - Juniper partnership to help service providers evolve networks



Optical Networking

- **Market dynamics**
  - **Market continued to decline in 2002 due to glut of capacity**
    - Significant declines in long-haul DWDM and traditional SONET
  - **Long-haul and legacy gear will likely continue to decline at single digit rates through 2005**
  - **Metro TDM (SONET/SDH ADMs) and new MSPP segment will see moderate growth**
- **Service provider response**
  - **Focus has moved to metro deployments and enhancements to ADM and DCS networks with next-gen MSPP products**
  - **Metro spending will be directed at MSPP products rather than metro DWDM as carriers focus on new services and efficient transport**
  - **Service providers will expand metro networks near capacity exhaust via metro DWDM, but opportunity is limited**
  - **Service providers are adding capacity to existing long-haul networks rather than deploying new long-haul or ultra-long-haul networks**
- **Lucent strategy**
  - **Focus investment on metro optical (DMX™, Metropolis® ADM, LambdaUnite™)**
  - **Capitalize on OpEx/CapEx savings offered by Navis® optical network management and "whole portfolio" synergies**



Lucent Optical Networking Portfolio

- Synergies across the Lucent optical portfolio
  - Navis® unified network management software provides auto-provisioning of optical services across entire portfolio
  - Multiple protection options (incl. mesh restoration) to increase reliability, survivability
  - "Compatible optics" across family saves CapEx on transponders
- LambdaUnite™
  - Consolidates a CO into a single box, thus reducing both CapEx and OpEx and eliminating points of failure (cable, etc)
  - Reduces complexity by bridging traffic across core and metro networks
  - "Plug & Play" architecture expands bandwidth from 2.5G to 40G by simple addition of hardware packs
- Metropolis® family (DMX and ADM)
  - Easy addition to existing networks
  - Supports legacy plus new Ethernet – SONET/SDH, wavelength, and storage networking services
  - Metro DMX and ADM cut costs with 50 percent footprint, 40 percent power reduction, reduce complexity by integrating cross-connect and SONET or SDH ADM capabilities
- LambdaXtreme™
  - Lowest cost/Gigabit for long-haul 10G/40G



LambdaUnite

Combines transport and cross-connect functions



Metropolis DMX family

50% footprint/ 40% power reduction



Metro ADM

Next-generation integrated SDH/ Ethernet MUX for Europe, Asia





LambdaXtreme

Makes one 40G system more cost-effective than four 10G systems

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Convergence Solutions

- **Market dynamics**
  - **Market growth in some areas**
    - Increasing teledensity in international market
    - New entrants in local and long distance
    - Wireless growth places additional demand on tandems
  - **Evolution to next-generation networks in areas of growth**
    - Potential for new revenues from next generation endpoints, IP Centrex, unified messaging
    - Wireless
- **Service provider response**
  - **Spending focused on growth areas vs. broad network applications**
  - **Explore next-generation networks through market and lab trials, primarily focused on enterprise services**
- **Lucent strategy**
  - **Leverage 5ESS® embedded base to capture growth areas**
  - **Leverage common technology and development across platforms**
    - Common Lucent Softswitch for Wireline and Wireless
    - Common SIP and IP technologies across Lucent Softswitch and 5E-XC™ switch
    - Common messaging platform for Wireline and Wireless
  - **Partner as appropriate to address near-term opportunities**



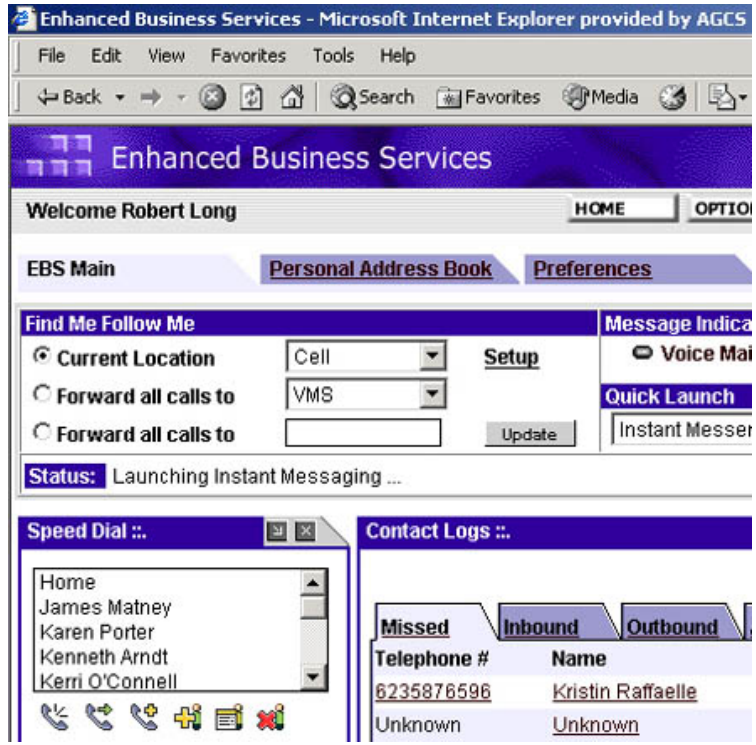
Convergence Solutions Portfolio

- **5E-XC™**
  - Triple the capacity of existing switches and interface to IP and SIP networks
- **Lucent Softswitch**
  - Deliver advanced next-generation services across wireline and wireless networks
- **PSAX Multiservice Gateways**
  - PSAX multiservice gateways provide any-service, any-channel flexibility, all-in-one telephony and Internet access in wireless and wireline networks
- **iMerge® Centrex Feature Gateway**
  - Deliver full Centrex Services to IP enterprises



Convergence Solutions Applications

- **AnyPath® Messaging**
  - Unified messaging platform leverages and extends current wireline/wireless messaging applications into IP networks
- **Enhanced Business Services**
  - Web portal software that enables service providers to deploy new CTI applications for next-generation and legacy subscriber base (e.g., Click-to-Dial, Presence, and Microsoft® integration)
- **ClientCare®**
  - Software that delivers next-generation contact center services to enterprises, preserves Centrex base and reduces costs
- **Advanced security services**
  - Carrier-grade high-availability secure enterprise services supported by Access Point® IP Services Routers, Lucent VPN Firewall, Lucent Security Management Server and IPSec client software



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Access Networks

- **Market dynamics**
  - Demise of new operators limited SDSL opportunity globally
  - Regulation continues to be a significant factor in access
  - International markets show potential growth for xDSL
  - Decrease in access lines limits demand for DLCs
  - Failure of ISPs and emerging carriers, overbuilt networks, broadband market growth have severely eroded the RAS/RAC market
- **Service provider response**
  - Some international customers (e.g., China) are starting first wave of ADSL deployment
  - Some international customers (e.g., Korea) are on second wave, moving to VDSL
  - U.S. RBOCs are investing in broadband
  - U.S. IXCs and new carriers are choosing to unbundle rather than build
- **Lucent strategy**
  - Grow existing access business with value-added applications
  - Focus on new access infrastructure builds
    - U.S. opportunity due to recent regulation
    - International VDSL builds



Access Networks Portfolio

- Stinger® DSLAM portfolio supports new IP video, voice over DSL services while IP or ATM deployment provides flexibility
- AnyMedia® Access System provides proven broadband/narrowband access for multivendor switch environment
- Universal gateways – APX®, MAX TNT® and MAX®
  - Scalable from 96 to 8,064 ports for data dial-up, VPN and VoIP services
  - Any-service-any-port technology
- End-to-end broadband solutions to support single source service bundles

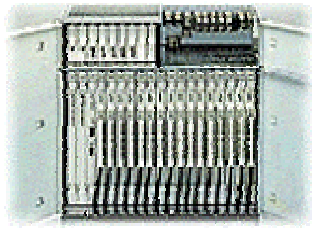


Stinger FS, LS, RT and MRT

Full line of DSL access multiplexers

AnyMedia

Next-generation Digital Loop Carrier





APX 1000, APX 8000, MAX TNT

30 million Internet connections made daily via Lucent systems

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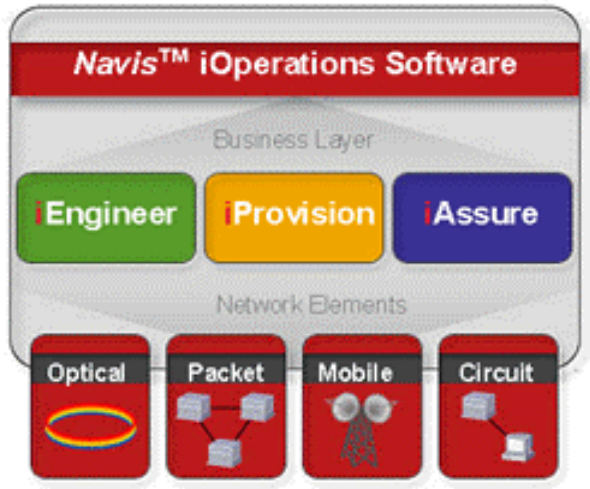
Network Operations Software

- **Market dynamics**
  - **Spending distributed among internal service provider IT groups, equipment vendors, systems integrators and ISVs**
    - 30% spending on internal staff
    - 10%-to-30% spending on equipment vendors
    - 40%-to-60% on systems integrators, ISVs
  - **Convergence is increasing demand for next-generation OSS that can provide integrated operations across legacy and next-gen services**
- **Service provider response**
  - **Focus on Op-Ex reductions**
  - **Consolidate disparate OSS and systems**
  - **Facilitate migration from bandwidth services to value-added services**
- **Lucent strategy**
  - **Pursue opportunity for service providers to leverage next-generation OSS to dramatically lower Op-Ex**
    - Bridge operations across legacy and next-gen services
    - Provide customer and service-centric service quality management
    - Leverage network intelligence to provide more effective operations
  - **Leverage OSS capabilities in partner, mobility and systems integration opportunities**



Network Operations Software Portfolio

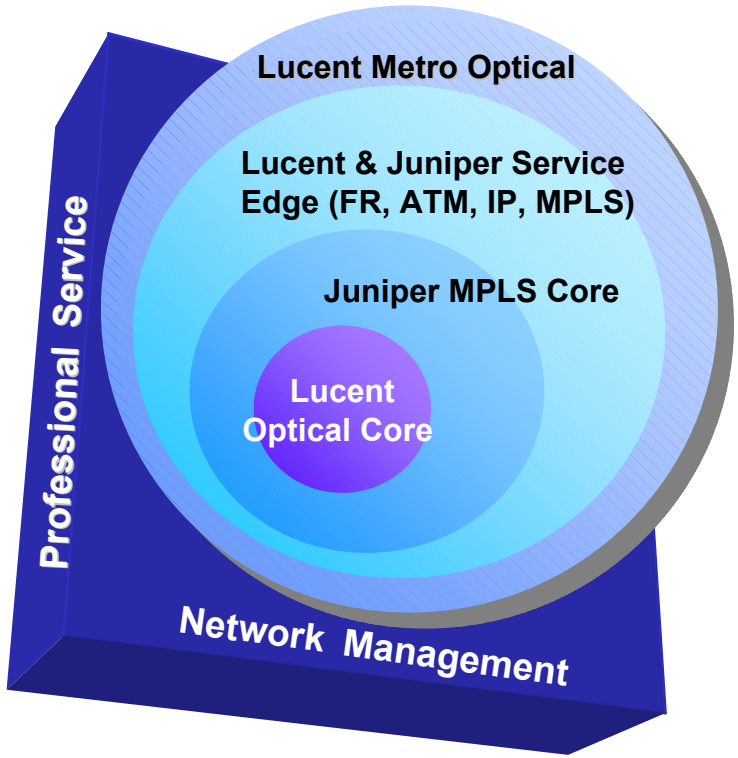
- **Opportunity**
  - **More than 50% of service providers operate three or more independently built networks**
- **Lucent is investing in three *Navis*® iOperations software product families:**



  - ***Navis* iAssure for fault and performance management**
    - Minimize network operations complexity
    - Ensure customer satisfaction through Service Quality Management
  - ***Navis* iProvision architecture**
    - Flow-through provisioning to speed time-to-market for new service offerings
    - Open logical & physical resource discovery to maximize ROI on existing network investment
  - ***Navis* iEngineer for integrated element management**
    - Minimize network complexity
    - Reduce network operations costs

Lucent/Juniper Strategic Partnership

- Service providers need to make the most of their networks:
  - Maximize existing opportunities
  - Optimize future investment
  - Simplify network management
  - Transform their networks and business models
- This partnership is unique in providing a common vision and integrated solutions from leading vendors to address these needs
- Comprehensive answers address complete service implementation
  - Unified Solutions
  - Network Management
  - Operations
  - Systems Integration



Leveraging Joint Industry Leadership

- **A fully integrated network evolution blueprint from design to implementation simplifying typical integration challenges**
  - **A single source for integrated network services, implementation and ongoing service and support**
  - **Comprehensive solutions with seamless integration to existing management systems**
  - **Jointly developed common network management with end-to-end provisioning**
- **Deliver pre-tested, validated joint solutions to leading service providers worldwide**
- **Leverage existing relationships and expertise in service provider networks**
  - **Juniper Networks gains access to Lucent's ATM, frame relay, optical, 5ESS® and software installed base, its sales channels and services capability**
  - **Lucent gains access to Juniper Networks installed core & edge networks**
  - **Together we will leverage Juniper's and Lucent's R&D investment and expertise across product lines to lower development cost and speed time to market**
  - **We will integrate our product roadmaps to ensure service providers of seamless evolution of our solutions**



Bringing Unified Solutions To Service Providers

	Solution Testing and Documentation	End-to-End Provisioning and Common Management	Joint Development
Multiservice MPLS Backbone	✓	✓	✓
IP Centrex	✓	✓	✓
Enhanced IP VPNs	✓	✓	✓
Enhanced DSL	✓	✓	✓
Optical IP Edge Services	✓	✓	✓
Lucent Worldwide Services	▪ Joint subject matter expertise ▪ Process integration ▪ Single point of contact for design, implementation and service		

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Leveraging Complementary Lucent/Juniper Strengths

	Lucent Technologies	Juniper Networks
Multiservice MPLS Backbone	**CBX 500®, GX 550®, Navis® Core, Navis iOperations, VitalSuite™**	**T-Series™ Routers**
IP Centrex	**iMerge®, Enhanced Business Services, 5E-XC™, Navis iOperations, VitalSuite™**	**E-Series™ Routers**
Enhanced IP VPNs	**PSAX®, CBX 500®, GX 550®, Navis® iOperations, VitalSuite™**	**M-Series™, T-Series™ Routers**
Enhanced DSL	**CBX 500®, GX 550®, Stinger®, AnyMedia®, Navis® iOperations, VitalSuite™**	**E-Series™, T-Series™ Routers**
Optical IP Edge Services	**Metropolis® DMX, ADM, Navis® Optical Management**	**M-Series™, T-Series™ Routers**



Multiservice Switching Portfolio

- **GX 550®, CBX 500® Multiservice Switches**
  - Can be deployed in core or at edge of network to increase service capacity
  - MPLS technology migration to support network consolidation, operational efficiency, reduced complexity and next-gen IP services



GX550, CBX500 Multiservice Switches

Highly reliable switching for core and edge networks



Recent INS Wins

Sprint

Stinger® Access Concentrator
To be deployed nationally in local networks [March '03]

cingular WIRELESS

PacketStar® (PSAX) Multiservice Media Gateway
Increases capacity of nationwide mobile network facilities [March '03]

orange

PacketStar® Access Concentrators
ATM network build-out [Jan '03]

Stinger® MRT-48A
Telekomunikacja Polska carrier-class DSL access (March '03)

Bell

BELL CANADA

AnyMedia™ Access System
Next-generation voice/data access [Jan '03]

BT

New revenue-generating **Ethernet-over-SDH optical** services [March '03]

Deutsche Telekom

LambdaUnite® MSS
Help meet DT business and residential customers' growing bandwidth demand for data applications [Oct '02]

Korea Telecom

AnyMedia™ Line Access Gateway
Access build out to support move to next-generation network [Dec '02]

Conversent Communications

Broad Portfolio
Expansion of multiservice network throughout northeastern U.S. [Oct '02]

SBC

5E-XC™ High-Capacity Switch
iMerge Centrex Feature Gateway
Access tandem applications [Dec '02]

INS Is Positioned To Succeed

- **Even with today's challenges, INS is still addressing a $40B market opportunity in 2003**
- **Developing leading-edge INS products in the areas where our customers are investing**
- **INS is pursuing the opportunity with:**
  - **Competitive optical, circuit and packet switching product portfolio for service providers**
  - **Globally deployed solutions capability**
  - **Competitive network management systems**
  - **Most extensive services capability to manage and integrate service provider networks**
  - **Deep, long-term customer relationships with leading service providers worldwide**

