Current APEC Initiatives on Paperless Trading

- Benefits and Challenges

Benefits

- Savings to business
  - Communication charges
  - Fewer errors
  - Lower interest payments on trade finance
  - Efficient supply chains
  - Electronic Certificates
- Savings for government agencies, banks, insurers and shipping companies

Recent APEC initiatives

- E-APEC Strategy 2001
  - Universal internet access by 2010
- Cybersecurity Strategy 2002
  - Secure Trade in the APEC Region
- Leaders’ Statement on Trade and the Digital Economy

e-Business

- Progress to date

- Improved internet access
- Lower internet charges
- New technologies and systems
- Supportive legal and regulatory regimes
- Privacy and security of electronic transactions
Internet Access 2003

Affordability of internet services in 2002

Paperless Trading Goals
- Reduce or eliminate paper documents by 2005/2010
- A sound legal and regulatory framework
- Secure and interoperable technology
- Responsive to business
- Capacity building

APEC Paperless Trading Environment
- Public-private partnerships
- Institutional arrangements and capacity building programs
- Pathfinders
- Common standards and procedures
- A balance between trade facilitation and security
Current APEC Programs

- E-procurement
- On-line customs clearance
- Electronic Certificates of Origin
- Electronic SPS Certificates

e-Procurement

- Survey of e-Procurement systems and online tendering
- Implementing e-Procurement strategies
- e-Procurement guidelines
- e-Procurement technologies

Paperless customs administration

- SCCP Paperless Trading Collective Action Plan
- Self assessment and technical needs analysis to identify areas to improve customs practices
- Provision of capacity building assistance

Electronic customs administration

- Electronic customs clearance systems
- Common Data Elements
- Kyoto Protocol Pathfinder
- WCO Customs Data Model
**Electronic Certificates of Origin**

- APEC Pathfinder Initiative
  - Confidentiality, authenticity and non-repudiation
  - Potential savings of $US100/certificate
- Challenges
  - Acceptance of ECOs by financial institutions
  - Agreement on standards for ECOs
  - Not required in a post-transaction compliance regime

**Electronic SPS Certification**

**Case study findings**

- The internet is an excellent platform
- XML is superior to EDI
- Data must be accessible to all members of the supply chain
- Data sets are more practical than sets of documents in electronic format
- Work is needed on Letters of Credit, Bills of Lading and Inspection Certificates

**Challenges**

- Capacity building
- Global e-business interoperability
- Mutual recognition of PKI domains
- International standards
- Participation in e-Pathfinders
- E-Carnets, e-LCs and e-Bills of Lading
Paperless single window systems

- Single window systems multiply the benefits of paperless trading
- UN/CEFACT Draft Recommendation No 33
- Benefits to government and business
- Experience of Singapore and the United States

Possible policy responses

- International standards for ECOs and e-SPS
- UN/CEFACT single window systems
- Including e-Commerce in FTAs
- Digital certificates and PKI domains
- Internet environment - SPAM, IPV6
- Electronic Letters of Credit, Bills of Lading
- New Pathfinders - express consignments; e-Carnets

Thank you

Bruce Bennett
BB@apec.org
**ebXML**

Establishment of Interoperability and Standardization for Implementing Domestic and Cross-Border Paperless Trading

21st of July, 2004
ebXML Asia Committee
Hisanao Sugamata (FCoin)

**EDI is essential**
for the current business

**Barriers for Paperless Trading**

- Customs
- Port Authority

- Double Investment
- More Operation Cost
- Frequent Errors

**Network Platform A**

**Network Platform B**

**Company A**

**Company B**

**Company C**

Electronic Data Interchange

Improved Business Processes
Enabled BP Reengineering (JIT, VMD)
Paperless Trading in APEC

Interoperable Technical Infrastructure by ebXML

ebXML Specification Structure

Business Operational View
- Business Process Definition
- Business Information Definition

Standardized by UN/CEFACT

Functional Service View
- System Collaboration Definition
- Telecommunication Infrastructure

ISO Standard (submitted by OASIS)

ebXML Operational View

Goal
To facilitate e-business in Asian Region enterprises of any size any geographical location

By ebXML implementation

Established in Dec/2000
25 ebXML Asia Committee Members
From 9 Regions

- Australia
- China
- Chinese Taipei
- Hong Kong
- Japan
- Korea
- Malaysia
- Singapore
- Thailand

ebXML Asia Interoperability Test

12 Certified Solutions
in 7 Economies

- Korea
- Japan
- Chinese Taipei
- China
- Hong Kong
- Thailand
- Singapore

ebXML Interoperability Certification

<table>
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<tr>
<th>Level 2 Certificate</th>
<th>Aug '03</th>
<th>May '05</th>
</tr>
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<tbody>
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<td>CECID (Hong Kong)</td>
<td>Apz21 (Japan)</td>
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<tr>
<td></td>
<td>CrimsonLogic (Singapore)</td>
<td>S2B Internet (Korea)</td>
</tr>
<tr>
<td></td>
<td>Fujitsu (Japan)</td>
<td>CSJ (Japan)</td>
</tr>
<tr>
<td></td>
<td>Hitachi (Japan)</td>
<td>Daesan (Korea)</td>
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<tr>
<td></td>
<td>GCOM (Taipei)</td>
<td>ETRI (Korea)</td>
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<td></td>
<td>KTNET (Korea)</td>
<td>Infotria (Japan)</td>
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<tr>
<td></td>
<td>NEC (Japan)</td>
<td>NTT Data (Japan)</td>
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<tr>
<td></td>
<td>POSDATA (Korea)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Samsung SDS (Korea)</td>
<td></td>
</tr>
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<td>SKELSE (China)</td>
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</table>

<table>
<thead>
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<th>Level 3 Certificate</th>
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<td>Reliability</td>
<td>CECID (Hong Kong)</td>
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<td></td>
<td>CrimsonLogic (Singapore)</td>
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</tr>
<tr>
<td></td>
<td>Fujitsu (Japan)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Innotri (Japan)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>JET (Thailand)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>KTNET (Korea)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NEC (Japan)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SKELSE (China)</td>
<td></td>
</tr>
</tbody>
</table>

Core Component Asian Library

- Hong Kong CC/BIE
- KIEC CC/BIE
- ECOM CC/BIE
- Steel CC/BIE
- Trade CC/BIE
- Automobile CC/BIE
- Distribution CC/BIE
- E&E CC/BIE
- Publishing CC/BIE

UN/CEFACT
TBG & ICG/ATG

Harmonisation
ebXML Asia CCTG

ebXML Asia Library
**Recommendation**

*Promote ebXML Standards*

- Model BP/BI based on the Common Component
- Utilize the ebXML Asia Libraries
- Make the Sharable solutions use of
  - Use the ebXML Asia Certified Solutions
  - Utilize the freebXML Open Source
- Establish RR federated with APEC regions
- Utilize the POC Project experience

*For Paperless Trading in APEC*

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**Join US!**

The next ebXML Asia Committee Meeting will be held in Seoul (Korea)

27th ~ 29th / October / 2004

**Contact Information**

E-mail: sugamata@ecom.jp

ebXML Asia Committee Web Site: www.ebxmlasia.org

ECOM Web Site: www.ecom.jp
E-Transportation & E-Logistics

Asia/Pacific markets are directly tied to global trade and logistics e-marketplace creation and management. The region remains the very center of the world’s industrial output (approximately 50%).

Trend:
The electronic exchanges that successfully combine robust front-end inter-enterprise integration tools, multi-mode information support and target specific virtual private networks and narrowly-focused vertical communities will serve most of the global e-trade community.

Single Window e-Logistics

Definition of a Single Window by WCO

“A facility enabling the provision of standardized information with a single body to fulfil all import, export and transit related regulatory requirements. If information is electronic then individual data elements should only be submitted once.”

International Examples of Single Window

<table>
<thead>
<tr>
<th>Country</th>
<th>System</th>
<th>Dealing with</th>
<th>Linked to:</th>
<th>Status</th>
<th>Costs of introduction</th>
<th>Costs of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Singapore</td>
<td>TradeNet</td>
<td>International trade clearance</td>
<td>35 government agencies and departments</td>
<td>Live</td>
<td>20 million</td>
<td>Singapore dollars</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>One off fixed fee of 15,000 Sing. Dollars and yearly maintenance fees of around 5,000 Sing.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Per customer transaction S$6.50</td>
<td></td>
</tr>
<tr>
<td>Thailand</td>
<td>One Stop</td>
<td>Sea traffic clearance</td>
<td>Port authority, Customs</td>
<td>Live</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Shop</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>USA</td>
<td>ITDS</td>
<td>All international trade</td>
<td>About 100 government agencies, bureaus and offices involved in international trade</td>
<td>Under development</td>
<td>Total programme costs estimated at $256 million US, including development, deployment and operation.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Three groups cover all: 1. Admissibility and export control agencies; 2. Data collection and statistical agencies; 3. Statistical only agencies</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Single Window e-Logistics

**Logistics Services Sector IT Spending: Worldwide, 2002-2007 (Millions of Dollars)**

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia / Pacific</td>
<td>2,179</td>
<td>2,324</td>
<td>2,433</td>
<td>2,534</td>
<td>2,672</td>
<td>2.857</td>
</tr>
<tr>
<td>Eastern Europe</td>
<td>301</td>
<td>337</td>
<td>357</td>
<td>356</td>
<td>427</td>
<td>457</td>
</tr>
<tr>
<td>Japan</td>
<td>1,753</td>
<td>1,901</td>
<td>1,958</td>
<td>2,034</td>
<td>2,123</td>
<td>2,214</td>
</tr>
<tr>
<td>Latin America</td>
<td>689</td>
<td>713</td>
<td>768</td>
<td>855</td>
<td>952</td>
<td>1,081</td>
</tr>
<tr>
<td>Middle East &amp; Africa</td>
<td>274</td>
<td>319</td>
<td>343</td>
<td>398</td>
<td>395</td>
<td>6.10%</td>
</tr>
<tr>
<td>North America</td>
<td>6,782</td>
<td>6,972</td>
<td>7,286</td>
<td>7,666</td>
<td>8,154</td>
<td>8,728</td>
</tr>
<tr>
<td>Western Europe</td>
<td>3,067</td>
<td>3,232</td>
<td>3,287</td>
<td>3,355</td>
<td>3,419</td>
<td>3,468</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>15,055</td>
<td>15,772</td>
<td>16,418</td>
<td>17,180</td>
<td>18,114</td>
<td>19,194</td>
</tr>
</tbody>
</table>

*Source: Gartner Dataquest (December 2003)*

### Integrated Single Window e-Logistics

**• Definition of a Integrated Single Window e-Logistics**

A Single Window System which applies IT in innovative and productive ways to maximize the business value of IT within cargo and logistics operations. It integrates the enterprise systems of the trade community and government agencies and supports the delivery of key strategic business objectives by increasing information velocity, visibility and accuracy.

- E-Heart & E-Soul of Trade, Logistics and Supply Chain
- Government Owned or Run and Owned by 4PL Provider.

---

**Illustration of Current Typical Trade Transaction**

- Financial Services Provider
- Government Agencies
- Freight Forwarders
- 3PL
- Market Place
- Free Trade Zone
- Customs
- SUPPPLIE
- Manufacturers
- Shippers
- 3PL
- Freight Forwarders
- Transport Management System
- Trade Documentation
- Order Fulfillment
- Business Rules
- Process Knowledge
- Integration of Application
- Visibility
- Freight Management System
- Business Process Management
- Business Rules
- Process Knowledge
- Integration of Application
- Visibility
- Freight Management System
• Characteristics of Contractual Approaches
  - Long-term and expensive investment. Hence only big companies (in Fortune 500) with huge customer bases can justify.
  - Good for “Core Carrier” who can leverage volume to lower prices for customers.
  - May not fulfill the real promise of e-commerce as not all Small and Medium Enterprises are able to link up.

• Characteristics of Transactional Approaches
  - Brings Buyers and Sellers together to execute individual transactions.
  - Facilitates comparison of pricing for transportation and logistics services within a single window.
  - To be successful, need to attract high volume of carriers and shippers to create a competitive marketplace (competitive pricing).
  - End-to-end services for customers – includes financing, insurance, freight and regulatory transactions.
Architectures - Integrated e-Logistics

Enterprise Architecture Focusing on Private or Public Trade Exchange:

- <.5% of all architectures address complex collaboration processes such as Product Design, Engineering Change Management, Program Management, Supply Chain Planning & Optimization.
- ~20% are dedicated to collaborative processes that are repeatable in nature (e.g. auctioning, bidding, and procurement of direct materials, as well as maintenance, repair and overhaul).
- >70% concentrate on the spot and indirect materials markets (e.g. excess inventory, after-market parts, office supplies and equipment).

Analysis of 113 private and public trade exchanges deployed in discreet manufacturing - Feb 2003

2 Major Categories of Enterprise Architecture:

- Extended Enterprise Architecture
  - Relies heavily on common business relationships and ignores differences between partners.
  - Expensive infrastructure.
  - Participants share a common instance of data repository that prescribes a collaborative workflow.
  - Collaboration is achieved by adopting technology that serves a single enterprise internally, and extending the same approach to link autonomous organization entities.

Generic Extended Enterprise Architecture Framework

A - Collaboration of Workflow
B - Business Logic and Data
C - Business Logic and Data

Trends - Integrated e-Logistics
Architectures- Integrated e-Logistics

- **2 Major Categories of Enterprise Architecture:**

  - **Federated Enterprise Architecture**
    - Combination of External and Internal Criteria to gain value.
    - Participants maintain their own internal workflow.
    - Framework which manages shared objectives across several autonomous organizations.
    - No/little duplication of data.
    - Enables partners of the same spectrum to achieve common business objectives.

- **Generic Federated Enterprise Architecture Framework**

Architectures- Integrated e-Logistics

- **Federated Architecture – Key Requirements**
  - **Participants’ system(s)**
    - Each participant must be able to deploy an open Standard gateway based on Web Services or other XML-based standard of choice that will expose its internal data to a structured interface.

  - **Connectivity to federation architecture**
    - Participants who wish to publish and/or subscribe to a set of collaborative events have to understand the meta-schema design that will be used in collaboration. Once the understanding of meta-schema is achieved, local gateways can connect using an interoperability standard such as XML, SOAP, and web services.

  - **Collaborative workflow adoption**
    - Participants must understand their internal processes to enable the collaboration of workflow in a Federated Architecture.

Trends - Integrated e-Logistics

- **Generic Federated Enterprise Architecture Framework**

Technology for Integrated e-Logistics

- **Some e-Logistics Standards**
  - **Enterprise Solution** – Enterprise Resource Planning(ERP), Warehouse Management System(WMS), Transport Management System(TMS), etc.
  - **Integration Tools** - Web Services, Integration Suite
  - **Messaging formats & Protocol Methods** - XML, ebXML, EDIFACT, X12, AS2, etc.
  - **Solutions & Technology** - E-Procurement, E-Marketplace, Portals, RFID
Challenges for Single Window e-Logistics

- Customers unwilling to pay for or trust such services/transactions.
- Some doubts on the return on investment for integration technology (which can be expensive).
- Policy issues – Data Protection, Pricing, Service Standards, enforcement, etc.
- Getting the agreement of all stakeholders including Governments, Suppliers, Customers, 3PL Parties, Banks and Insurance Companies.
- Lack of a globally accepted suite of integration technologies and standards.

Examples of emerging technology:

- RFID
- Web Services

Challenges & Business Trends

- Single Window e-Logistics
- Architectures for Integrated e-Logistics
- Challenges & Business Trends
- Conclusion
- NCS Pte Ltd

Technology for Integrated e-Logistics
Benefits - Single Window

- **Key Benefits of Integrated Single Window e-Logistics**
  - increased trade revenue
  - streamlined procedures
  - seamless experience for traders
  - reduced business cost
  - increased productivity
  - fast turnaround (cost and process)
  - empowered customers

- **Example of Benefits**
  - Realized Lower Freight Costs
  - Improved Order Cycle Times
  - Reduced Inventory
  - Enhanced Customer Service
  - Focus on Core Competencies

---

About NCS → Overview

**NCS Group of Companies**

- Australia
- China
- Hong Kong
- India
- Malaysia

NCS Int'l

IT Group

NCS Comms Engg

(NACS)
About NCS

Regional Reach
- 14 locations in 6 countries across the Asia-Pacific
- Global presence in more than 20 countries through SingTel

About NCS

The NCS Difference
- People Developer Award
- Largest pool of Certified Project Managers
- 3000 IT Workforce

About NCS

About NCS → NCS Experience

Customs and Trade
- Singapore Customs
- Logistics & Supply Chain (IPACS)
- Jurong Port (JP-Online)
- Hong Kong Customs (EMAN & CSI)

Others
- MediNET2
- NCS DC experience

About NCS → NCS Experience

Technology
- Gartner Dataquest (Sept 03)
- 2nd in Singapore & 10th in Asia Pacific for IT Professional Services
- Develop and implement large scale projects

Knowledge
- Choice partner for over 1000 projects and counting

About NCS

About NCS

Confidential
Copyright 1996-2004

People
- Developer Award
- Largest pool of Certified Project Managers
- 3000 IT Workforce

Process
- Singapore Quality Class
- ISO9001 Certification
- ISO9001: 2000 for Suzhou subsidiary

Technology
- Data centre services - BS7799 certified
- 1st Innovators Award for established CRM processes

Knowledge
- Top 100 Superbrands
- Choice partner for over 1000 projects and counting

Confidential
Copyright 1996-2004
Hong Kong CSI

To transmit advance cargo information received from HK carriers/NVOCCs

Leased line

HK Customs

for identifying high-risk container destined for US ports by online screening of the received advance cargo information at computer workstations.

US Customs

JP - Online

- A portal for customers to do online electronic transactions on:
  - container tracking
  - berth application
  - vessel scheduling
  - bookings and listings etc

- With hyperlinks to government agencies

Port Planning Tools
- Ship Planning
- Berth Planning
- Yard Planning
- Resource Planning

Port Management Applications
- Container Terminal Management
- Marine Management
- General & Bulk Cargo Management
- Auto Gate Management
- Fleet Management
- Integrated Billing & Financial System
**About NCS → NCS Experience**

**MediNET2**
- Connects over 50 hospitals, institutions and agencies.
- MOH foundation for future applications:
  - Longitudinal Medical Record
  - Public Health Surveillance.
- Key applications

**NCS Global Processing Centre**

**Overview**
- **Infrastructure**
  - 13,000 sq ft
  - Stripped cabling
  - 2x400kVA UPS
  - 7.5kN/sqm floor loading
  - BIG Connectivity

**Redundancy**
- Parallel redundant UPS
- Dual PowerGrid source
- N+1 precision air conditioners
- 1.25 MVA standby power generator

**Reliability**
- 24x7 monitoring
- Environmental Monitoring
- VESDA Smoke Detection
- FM200 Fire suppression

**Security**
- 24x7 security guards @ entrance
- 2 factor authentication for access
- CCTV at strategic location

**NCS Experience**

- NCS Data Centre
- National Patient Master Index
- Central Claim Processing Unit
- Insurance & Health Plan

- Internet/Leased Circuits/ISDN
- CPFB
  - MediSave
  - MediShield