<table>
<thead>
<tr>
<th><strong>Title</strong></th>
<th>Enabling the information age</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Author(s)</strong></td>
<td>Kwanchai Patanapongpibul</td>
</tr>
<tr>
<td><strong>Date</strong></td>
<td>1998</td>
</tr>
<tr>
<td><strong>URL</strong></td>
<td><a href="http://hdl.handle.net/10220/2321">http://hdl.handle.net/10220/2321</a></td>
</tr>
<tr>
<td><strong>Rights</strong></td>
<td></td>
</tr>
</tbody>
</table>
Enabling the Information Age

Kwanchai Patanapongpibul
Sales Consulting Manager
Oracle Systems (Thailand)

Personal Computing and Network Computing

Designing the Infrastructure for the Future of Computing
The NC Mission

To deliver inexpensive and easy-to-use appliances based on open standards for information access and communications.

What is Network Computing?

- Low cost, easy to use appliances
- Everything shared "on the network"
- Connect from anywhere to anywhere
- 1/3 the price of PCs with 1/4 the cost of management

What is Network Computer?

A Low Cost Digital Appliance Computer

Network Devices
What is the NC?

- Browser with Email and Universal Mail Gateway
- Word Processor, Spreadsheet and Presentation Graphics
- Data Entry and Forms based Applications
- JAVA Applets

All the functionality that most people need:
- Lower Initial Costs
- Lower Management Costs

PC Computing Today

- $3,500 PC Purchase Price
- $8,000 Annual Cost-of-Ownership
- Microsoft Office '98
  - 136 Mb Hard disk space
  - 24 Mb RAM
- 80% of all users use only 20% of the functionality

NC and the PC

- The NC delivers a consistent user interface across internet appliances (e.g., NCTV, NC Workstation, NC Phone, etc)
- PCs are used for content creation, while the NC is primarily for content navigation and delivery
- PCs run 100s of applications, NC applications will run on PCs
- NC will run a few core communications and custom productivity applications and a plethora of internet JAVA applets
What is Network Computing?

- Everything is stored on the network
- Everyone is connected to the network

NCI Target Markets

<table>
<thead>
<tr>
<th>Enterprise</th>
<th>Community</th>
<th>Consumer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corporations</td>
<td>Vertical Industries</td>
<td>Government</td>
</tr>
<tr>
<td>Schools</td>
<td>Small Business</td>
<td>Institutions</td>
</tr>
<tr>
<td>Local Government</td>
<td>Departmental</td>
<td>Corporate</td>
</tr>
<tr>
<td>Terminal Replacement</td>
<td>Corporate Apps</td>
<td>Personal Productivity</td>
</tr>
<tr>
<td>Information Access</td>
<td>Personal Productivity</td>
<td>Personal</td>
</tr>
</tbody>
</table>

NCI Market Products

<table>
<thead>
<tr>
<th>Enterprise</th>
<th>Community</th>
<th>Consumer</th>
</tr>
</thead>
<tbody>
<tr>
<td>NC Administration Server</td>
<td>Network in the Box</td>
<td>NC Custom Connect</td>
</tr>
<tr>
<td>NC Desktop</td>
<td>NC Server Suite</td>
<td>NC TV</td>
</tr>
<tr>
<td>NC Card</td>
<td>NC Desktop</td>
<td>NC Card</td>
</tr>
</tbody>
</table>
NC Market Opportunities

- Corporations
- Government Institutions
- Education
- Homes
- Developing Countries

NC Market Opportunities

- Corporations, Government and Institutions
  - Cost effective and predictable cost per user experience
  - Increased data repository
- Schools
  - Enable access to computer in uncomfortable
  - Online point of access allows broad deployment
  - Ideally suited for inter-school education within campus and
  - Distance learning environments
- Homes
  - High speed technology are coming
  - Targeted for people who are whose by PC capabilities
- World Wide Web
  - Will reach the "home user"
  - Opportunity to become the standard

Corporate/Government Intranets

- Networked computers
- Shared data
- Commercial
- Oracle Universal
- Database
- Server
- ISV Application
- Server
- Existing PCs
- NC Server
- Win Server
- Iomega"
Heme Environment

Home Environment Diagram

Education Environment

Education Environment Diagram

Bi-Design

- Consumer
- Corporate
Enhanced Television

<table>
<thead>
<tr>
<th>TV Today</th>
<th>Enhanced TV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passive</td>
<td>Passive and Interactive</td>
</tr>
<tr>
<td>Generalized</td>
<td>Personalized</td>
</tr>
<tr>
<td>Entertainment</td>
<td>Entertainment, Education</td>
</tr>
<tr>
<td>and Education</td>
<td>Communication, Library</td>
</tr>
<tr>
<td>One Dimension</td>
<td>Multi-Dimension</td>
</tr>
</tbody>
</table>

NC TV - Enhanced Viewing

The newest, most exciting way to access personalized web content.

Corporate

Fast and Faster
111MHz - 100MHz

Open Standards
(Televideo, VOD, B2B)
Network Computing Architecture

Wired Marketplace Enabled by NC

Success Factors for the Future

- Increased Security (Public Key)
- Plug & Play Servers
- Changes in Information Retrieval and Gathering
- Free Roaming with Security
- Adherence and Development of Open Standards
Paradigm shifts expand usage and users for technology:

- Focus on new user and usage
- Expand capabilities for terminal users, lower cost for PC users

Network Computers... are the interactive components of the Interactive Computing Infrastructure. Interactive Computing Infrastructure includes clients, servers, distributed computing, and end-user computing. IBM Network Stations - A Family of Network Computers.

Network Computing

- Borders and boundaries disappear
- Information assets are increasingly critical
- Barriers to market entry are reduced

IBM Network Stations
The NC is not about hardware. It is not about software. It does not matter whether it has more or less capability than a PC. The NC is about network computing. It's about how users choose to design, deploy and manage their network resources.

"The Enterprise Network Computer Market"

Our bottom-line recommendation is that pilot projects in transactional applications should be undertaken in 1997. The Yankee Group, February 1997.

"Making a Business Case for the Network Computer"

NCs will enable a whole lot more flexibility for many end users.

"Business Briefing: "Network" Computers"

Forty percent of enterprises will deploy NCs for some specific group of users by 1998, rising to 60% by 2001. Yankee Group Symposium, October 1997

NC Volumes will match PC volumes by 2005; dwarf them by 2010. The rise of NCs will massively challenge PC and PC software leaders' business models. IDC Executive Insights, November 1996

Access many systems and applications from one desktop
  - More than just Java applications

Access for today
  - Business applications across AS/400, RS/6000, S/390, PC Servers
  - Windows applications
  - Browsers for Intranet, Extranet, extra-net

Flexibility for tomorrow
  - Java for new applications
  - Easy to add new services at the server without touching the desktop

The Promise for Business
  - New class of solutions to
    - Enter new markets
    - Reach new customers
    - Extend reach to existing applications
    - Empower and users
    - Increases IT ROI
    - Accelerate application deployment
    - Reduces initial and ongoing costs

Freedom of

The Technology Benefits
  - First truly open platform - write once, run anywhere
  - Links disparate systems
  - New software distribution model
  - Usability in component technology
  - Affinity for Web-based development
  - Sweeping industry support
  - Enables Network Computers
Network Computing is a natural choice for deploying Java-based business applications:
- Consistent with Network Computing design philosophy
- Simplicity at the desktop; complexity moves to the network
- Full cost of ownership benefits plus:
  - Central management of applications on demand
  - Avoid client software installation, configuration, version
  - 100% Pure Java environment.
- Network Computing solutions can be delivered to existing PCs
  - Standard Web browser
  - No client software burden.

Desktop interface for NC users:
- Web browser
- File Manager
- Terminal Emulation
- InfoBus technology
- Business productivity components

InfoBus technology:
• Common services for all applications
• Business productivity components

Start programming for the IBM Network Station today.
Current technology strategies assume "one size fits all PC". Don't want PC's to become obsolete - standardize on models. Result in significant cost savings for under-utilization of PCs. Optimal technology strategy should align work task to technology platform.

Acquisition is an integral part of Total Cost of Ownership. Your class of business productivity software designed for Network Computing. Comprehensive set of integrated Java applets. Common menus - the UI, text attributes, uniform user assistance. Will be submitted for 100% Pure Java certification. Initially offered for Network Computer. Suits Developer focus. Two product lines for different users: NetStation for individual users, eStation Workplace for network focus.

Annual Savings Compared to Typical Windows 95 LAN PC:
- NC's most cost-effective way to provide access to info, Windows apps.
- NetPC's similar to test practices' Windows 95; higher cost than NC's.
- Java NC's offer highest degree of flexibility, savings.

ATTENTION: The Singapore Copyright Act applies to the use of this document. Nanyang Technological University Library.
Using 3270-type terminals to train airport agents

- Goal: move training from expensive regional sites to 110 airports
- Deploy more than 1,000 IBM Network Stations with local servers
- Run all tasks making training more convenient and feasible
- Expand usage - replace terminal at counters, new inventory system
- Benefits
  - Offers far more capability than 'green screen' terminal
  - Easier to manage and less expensive to own than PCs
  - Small size reduces real estate costs, avoids major counter modifications
  - Better service and support, easier management of year 2000 issues

Network Computing leads at American Eagle
- World's largest regional air carrier
- Using AS/400 type terminals to train airport agents
- Goal: move training from expensive regional sites to 110 airports
- Deploy more than 1,000 IBM Network Stations with local servers
- Run all tasks making training more convenient and feasible
- Expand usage - replace terminal at counters, new inventory system
- Benefits
  - Offers far more capability than 'green screen' terminal
  - Easier to manage and less expensive to own than PCs
  - Small size reduces real estate costs, avoids major counter modifications
  - Better service and support, easier management of year 2000 issues

Manufacturer of more than 700 fine fruit and sauce products
- Using AS/400 linking 189 terminals, 85 PCs, and 50 printers
- Goal: replace all terminals and some PCs with Network Stations
- Avoid hardware, software expense of purchasing, supporting 185+PC's
- Provide terminal users access to broader range of applications
- Benefits
  - Much lower cost of computing vs. PC's, more function than terminals
  - Dramatically simplify current multi-version software environment
  - Use OfficeVision to share documents in PC formats across company
  - View faxes on Network Station using AS/400 Integrated fax adapter

IBM Network Station, bring grocery retailers into the network age
- Maine-based operator of > 150 supermarkets in New England
- Using RS/6000's, connected terminals, and PCs
- Goal: deploy 1,200 IBM Network Stations
- Simpler seek store's computer inventory
- Provide terminal users access to broader range of applications
- Replace expensive and hard-to-maintain PC's, increase security
- Benefits
  - Better access to Internet and Lotus Notes
  - Eliminates current PC problems - disk failures, viruses, backups, etc.
  - Connects to store or corporate servers - S/390, AS/400, RS/600, PC
  - Requires very little support, and maintenance of applications is easy

Substantial reduction in total cost of ownership vs. PC's
- 40-60% estimates
- Without reduction in functionality
- Increased usability
- Reduced training and support costs
- Increased security
- Applications data are secured on servers
- Simplified software upgrade model
- Software upgraded in one place - the server
- Dynamic asset allocation - Client/Server
- Network resources vary dynamically with task being performed
- Ubiquitous Internet/Intranet access
- Enhanced application deployment speed and flexibility

ATTENTION: The Singapore Copyright Act applies to the use of this document. Nanyang Technological University Library
Moving from networked PCs to Network Computers

**Goal:**
- Deploy IBM Network Station for access, Internet, learning technology
- Provide access to PC applications, Internet, entertainment CD-ROMs
- Teach kids computers, bring technology to have and have-nots together

**Benefits:**
- Lower initial cost and ongoing cost of ownership. Installed management
- Avoid time and expense of PC hard drive failure, client software upgrades
- Silent operation, low heat, low energy usage (7 watts vs. 209 watts)
- Flexibility to connect to a variety of servers, data, Information
- Improved desktop management and security
- Internet access

**System Requirements:**
- IBM 486 or higher
- 8-64 MB memory
- Video memory: 1 or 2 MB of Video memory
- Token-Ring or Ethernet
- Serial and parallel ports
- Audio support

**Support:**
- VGA monitor
- Keyboard and mouse

**Additional Features:**
- Terminal support for 5250, 3270, X-Windows, VT100
- Keyboard NC Navigator
- Network Station Browser
A strategic part of Network Computing
Device Independence, server-managed
Universal access to new and existing applications
Windows support is assured
Optimum security with multiple servers and networks
Improved application management and reduced training and support costs
Universal ACCESS to Information...
Accelarated deployment of applications
Comipling resources managed
Reduced Total Cost of Ownership
SmartCard
Universal ACCESS to Information...
Continued enhancements
National language support, including DBCS, bi-directional
ASIC support for dial-up capability
SmartCard
Universal ACCESS to Information...
Increased productivity
Reduced training and support costs
Improved application management
Remote desktop environment
Renewed Total Cost of Ownership
Computing resources managed
dynamically
Better operational management
Improved training and support costs
Universal ACCESS to Information...
Continued enhancements
Print support
Terminal Emulation
Browser
SmartCard
Support
Universal ACCESS to Information...
Cumulative Capability (end of line)
Increased productivity
Terminal Emulation
Browser
SmartCard
Support
Universal ACCESS to Information...
Increased productivity
Terminal Emulation
Browser
SmartCard
Support
Universal ACCESS to Information...
Increased productivity
Terminal Emulation
Browser
SmartCard
Support
Universal ACCESS to Information...
Dealing With Cross-Border Broadcasting: More Regulations

Thawansak Sukhawun