

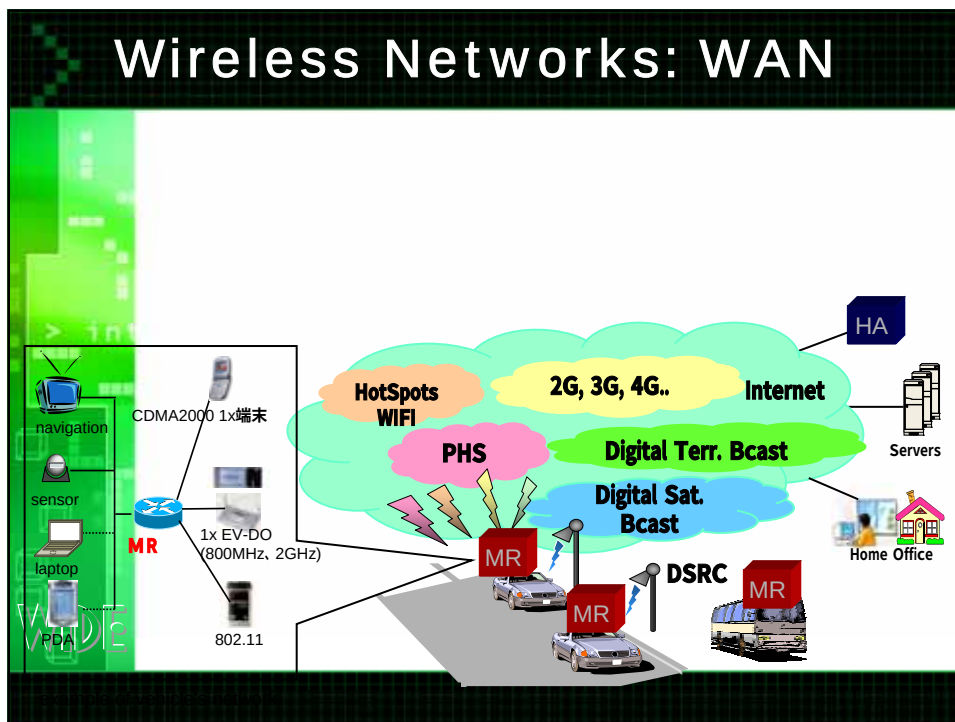


Topics

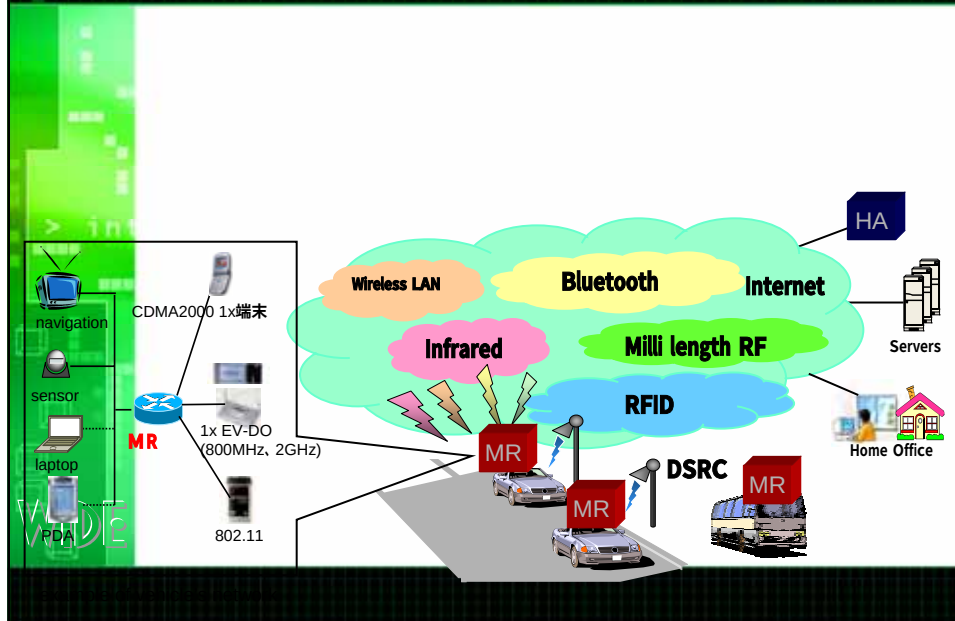
- Internet for non-PC and Mobility
- Video, Audio and Multicast
- Lambda Internet
- Latency
- Asia-Pacific Infrastructure

Some of these are not restricted to Asia-Pacific issues,
but some are BIGGER issues in here..

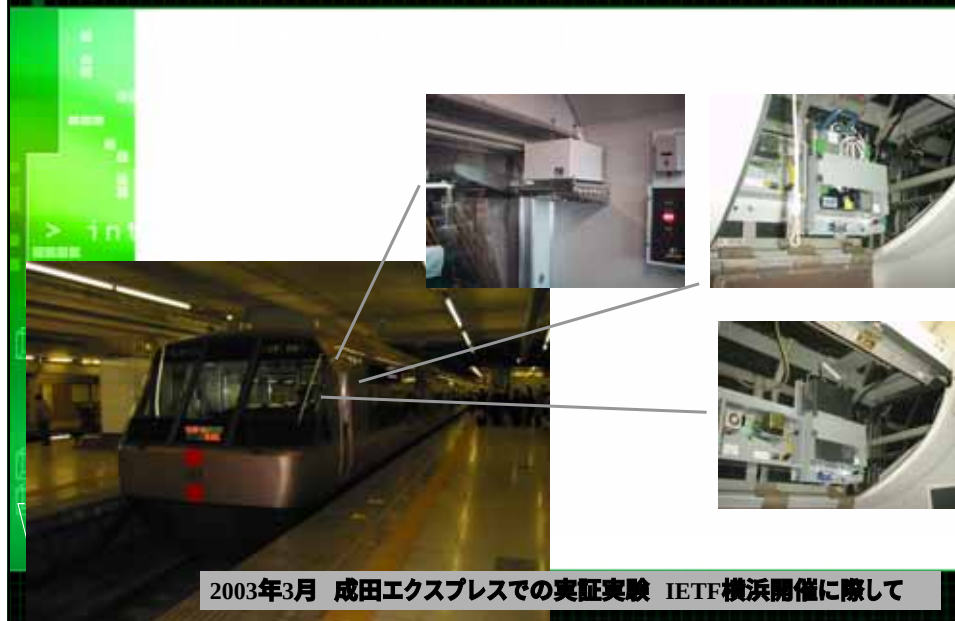
A small green logo with the word "WIDE" in white, outlined letters, located in the bottom left corner of the slide.



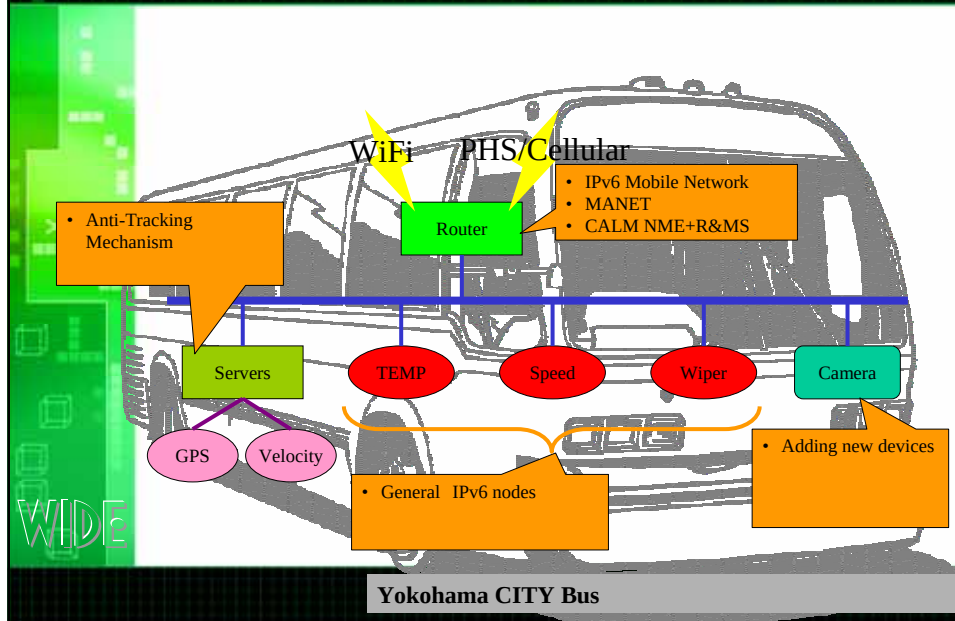
Wireless Networks: LAN



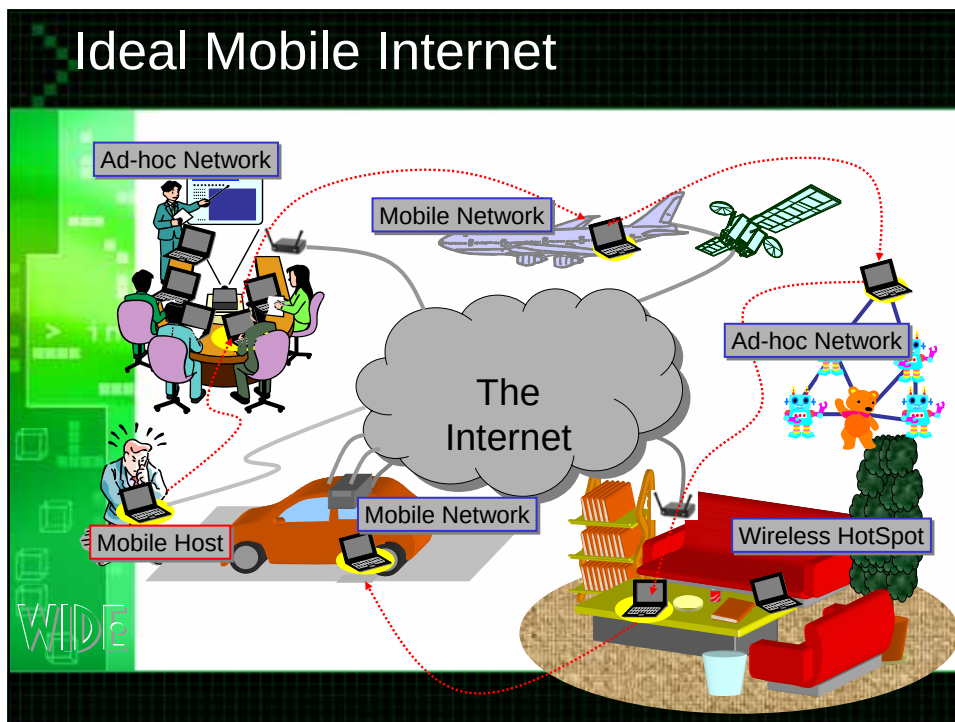
Internet Train



InternetCAR

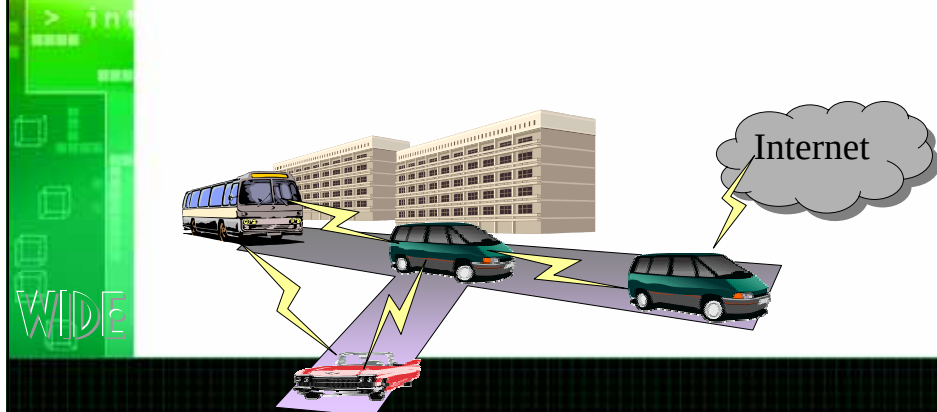


Ideal Mobile Internet

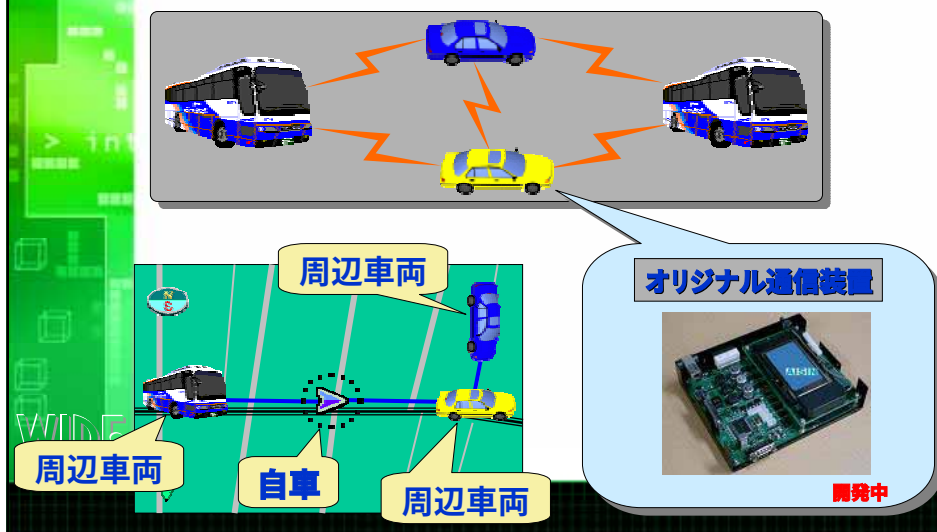


Mobile Ad-hoc Network (MANET)

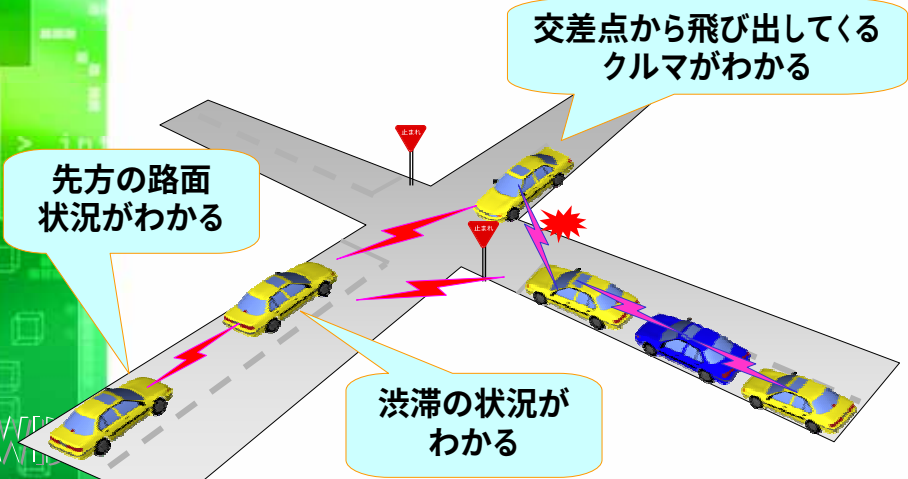
- Freedom to connect your neighbors
- Your neighbor might give you the Internet connectivity



Vehicle to Vehicle MANET Working Now

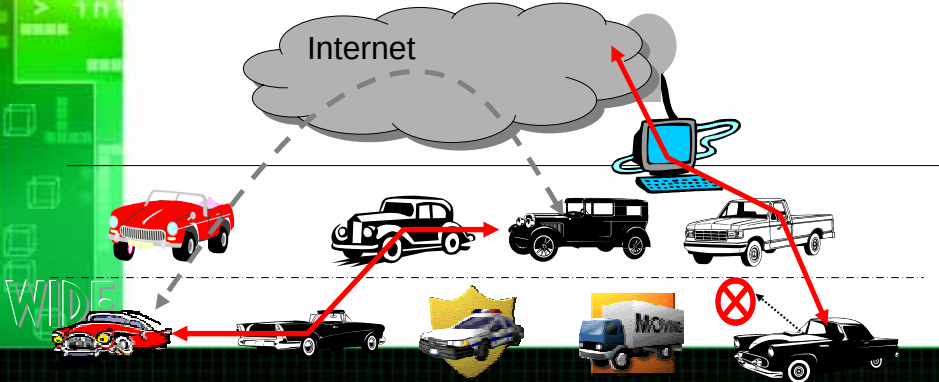


Sharing Information Among Vehicle



Expected Scenarios

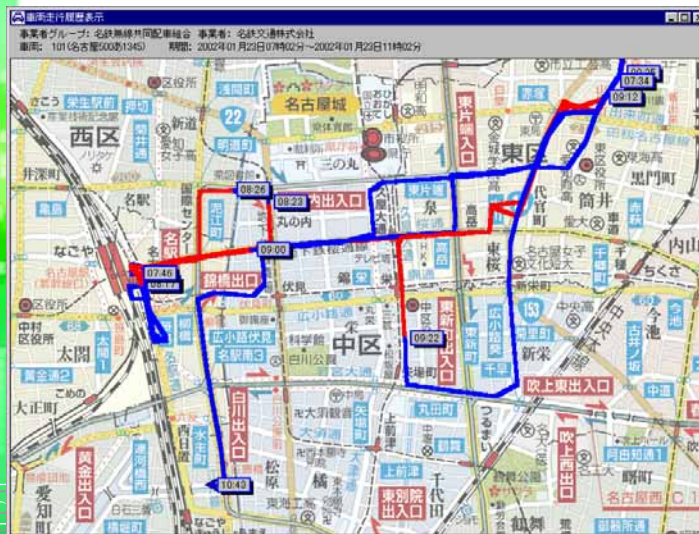
- Direct Connectivity
 - bypass Internet and any Home Agents
- Detour Connectivity
 - access to the Internet through multihop wireless



TAXI: an autonomous set of 'sensors'

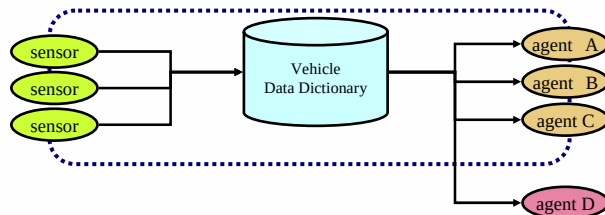


They collect speed, rain,
light, slip, temp, view, CO2, revolutions, weight, humidity....



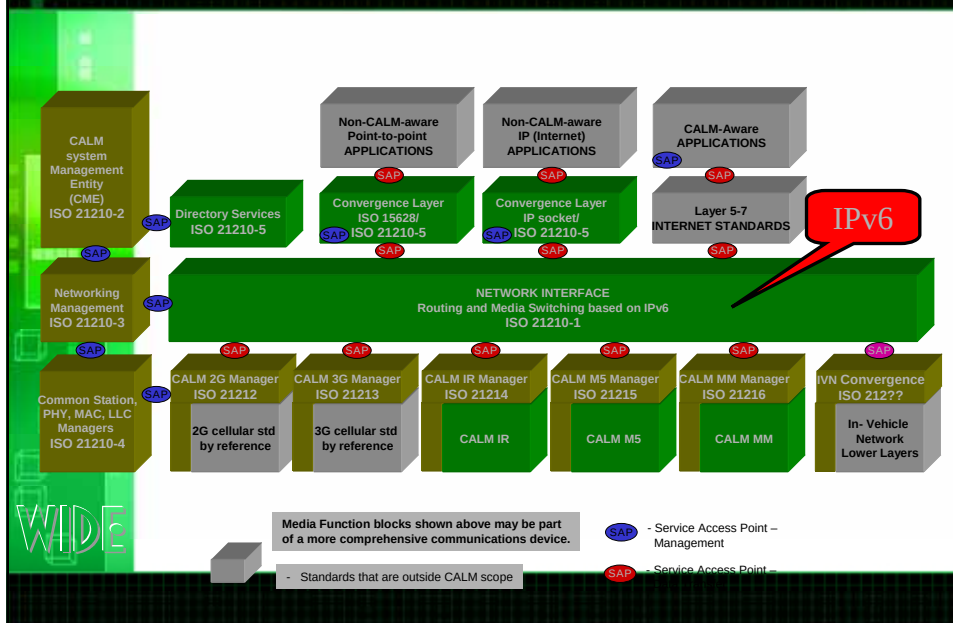
Data architecture

- ITS service platform
- Vehicle Information Interface
 - OBD-II (On-Board Diagnostic systems)
 - Unified information gathering independent of vehicle type
 - Can easy use vehicle information from the outside/inside

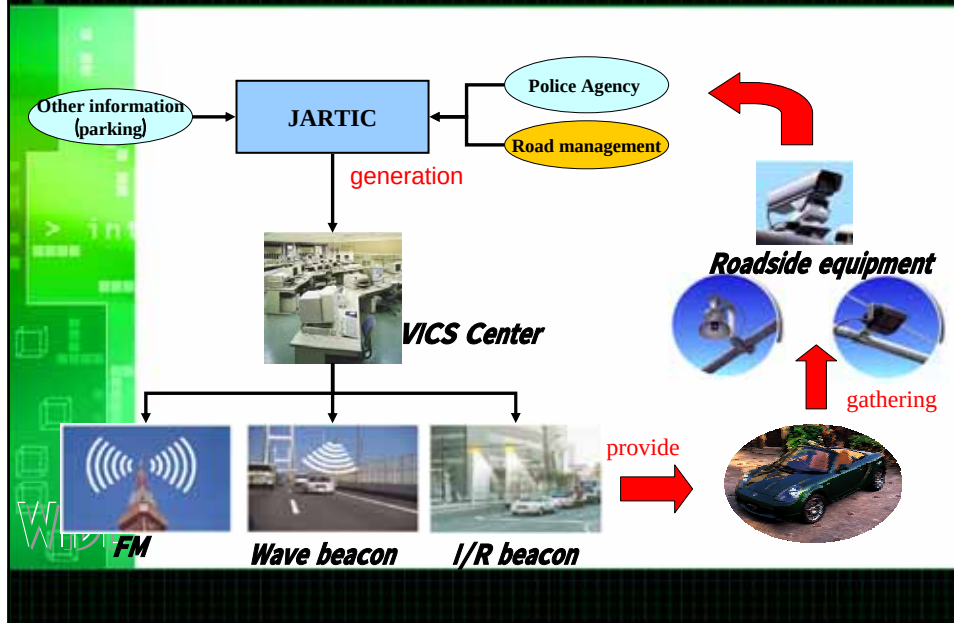


Vehicle information connector (OBD-II)

ISO: CALM Abstract Architecture Diagram



Open /Common communication platform?



UHF (950MHz) started testing in JP



ORF Activity Score

- ORF来場者のブースへの来訪記録を可視化するアプリケーション
- 来訪記録
 - 各ブースのHF帯RFIDリーダーで記録可能
- ORF Activity Score端末 (カフェ内に設置)
 - UHF帯RFIDリーダーで来場者検知
 - スクリーン上に行動履歴を表示



空港のチェックイン
成田空港と関西空港に設置されるという



コンビニでの決済



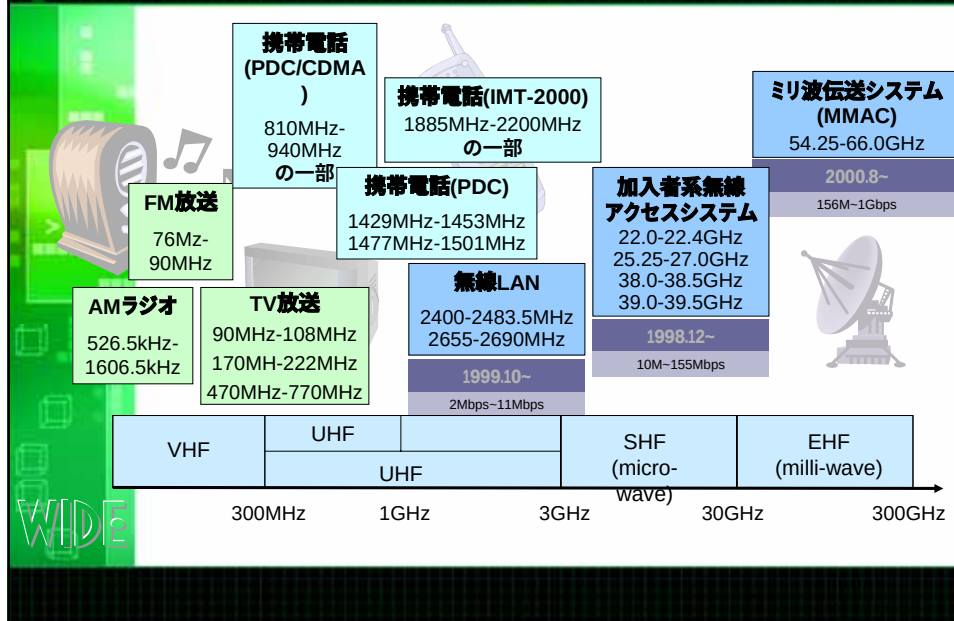
JCBの企業向けサービス。
入館も携帯電話をかざすだけでできる



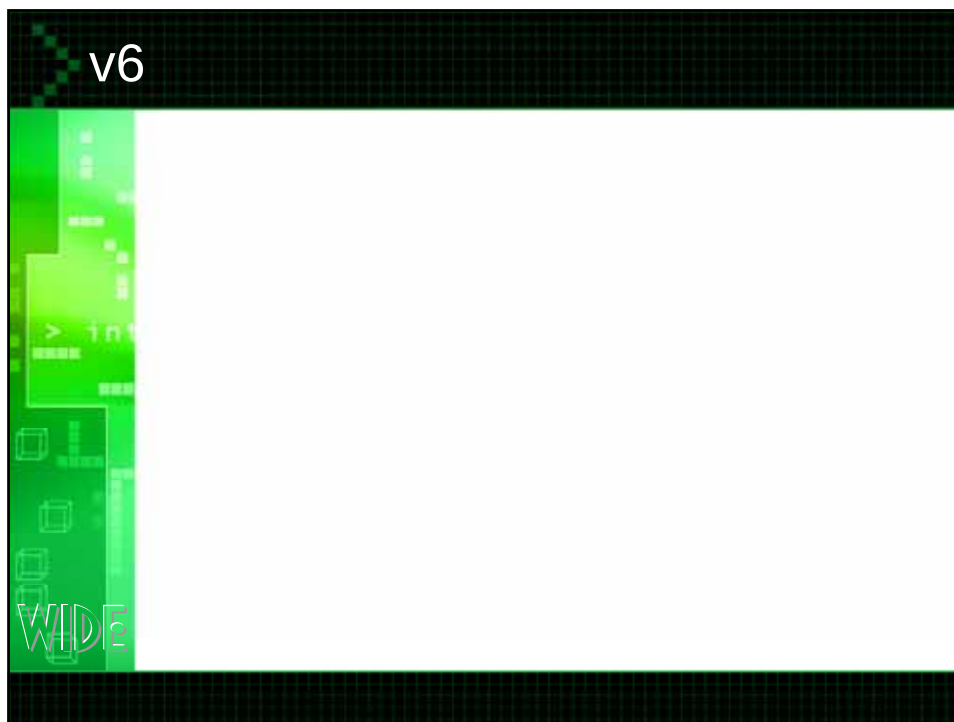
自動販売機もケータイで。

、「プラットフォームマーク」と名付けられたマークでどこにフェリカがあるかがわかるようになっている。

無線技術：ユビキタス時代への期待



v6



Large-scale introduction of IPv6 system



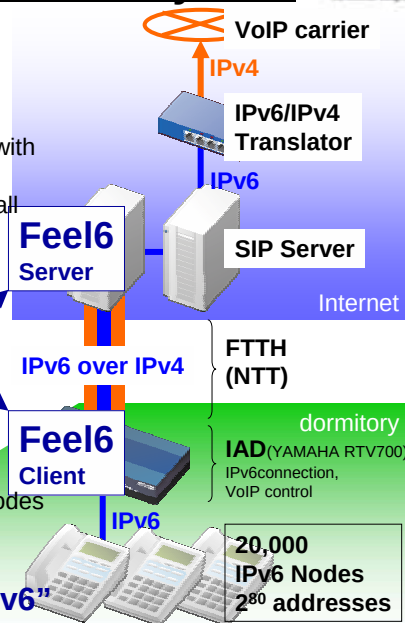
- **280** sites all over Japan
- IPv6 Node as many as **20,000**

The IP Centrex service, "IP Business Phone", developed by FreeBit, has got a major contract with Kyoritsu Maintenance, a nation-wide dormitory supplier. The IPv6 phones will be installed into all of their rooms, that is as many as 20,000.

Utilize a technology called, **"Feel6"**, which enables secured IPv6 network over existing IPv4 network

- Easiness to design the address management scheme regardless the tremendous number of nodes
- Management of terminal versions by achieving the reachability to each terminal over Internet

"Realized the cost reduction by IPv6"



(Note) Information as of 2005/Feb

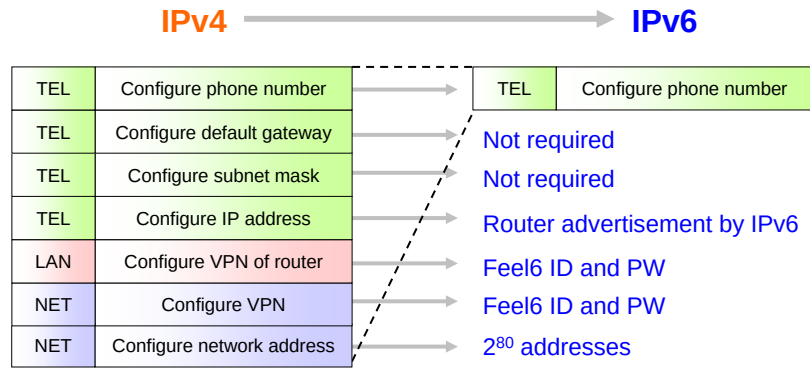
Cost reduction made possible by IPv6



	Design phase	Installation phase	Maintenance phase
IPv4 ↓ IPv6	Necessary to design the address range carefully Specific address design for each environment necessary	Necessary to configure the subnet mask and default gateway to each node Possibility to make mistakes in settings	Difficult to identify the nodes in trouble from the operation center Delayed trouble shooting
	Possession of abundant addresses and hierarchical design possible Specific address design for each environment not necessary	Auto-generation of IPv6 address upon reception of router advertisement No special knowledge necessary to installer	Easy to identify the nodes in trouble, and re-configure remotely with help of IPv6 Reduced complexity of maintenance

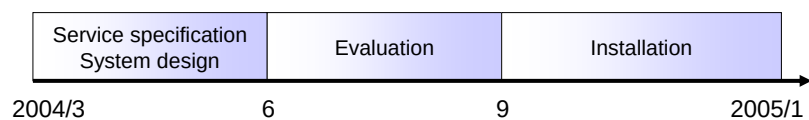
FreeBit Co., Ltd.

Significant reduction of network design steps



FreeBit Co., Ltd.

Launch of 20,000 nodes in a very short term



Abstraction of installation procedure into 3 patterns depending on the number of rooms, made possible by the easiness in IPv6 address design

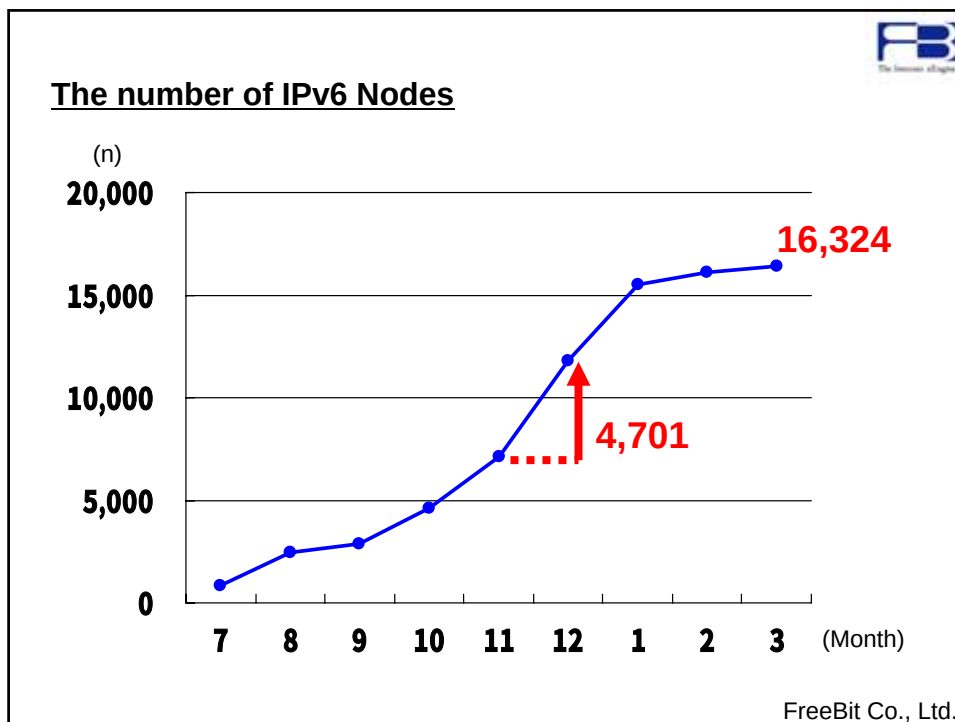


Easy installation due to the auto-generation of IPv6 address



Realization of remote monitoring and quick maintenance of the nodes, made possible by fixed IPv6 addresses

FreeBit Co., Ltd.



Hotel says 'Uninstall V6!'

- あるホテルで Windows XP をインターネットにつないだ
- IPv4 アドレスは取れる
- ブラウザでページにアクセスできない
- ホテルに問い合わせたら、"ipv6 uninstall" しろと言われた



DNS Server Issues



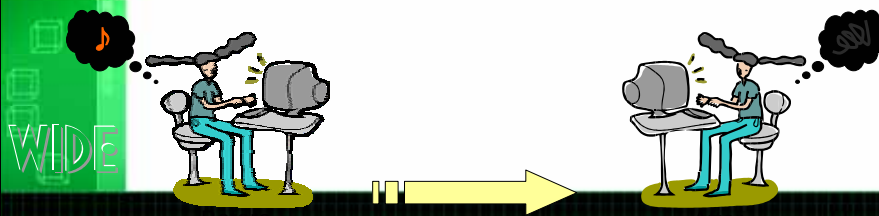


WIDE

BIND9 V4 fast, V6 slow issue

- ある ISP で BIND9(defaultでIPv6対応) をサービスに投入した
- ユーザからブラウザの「サクサク感」がなくなったと苦情が来た

Solved!



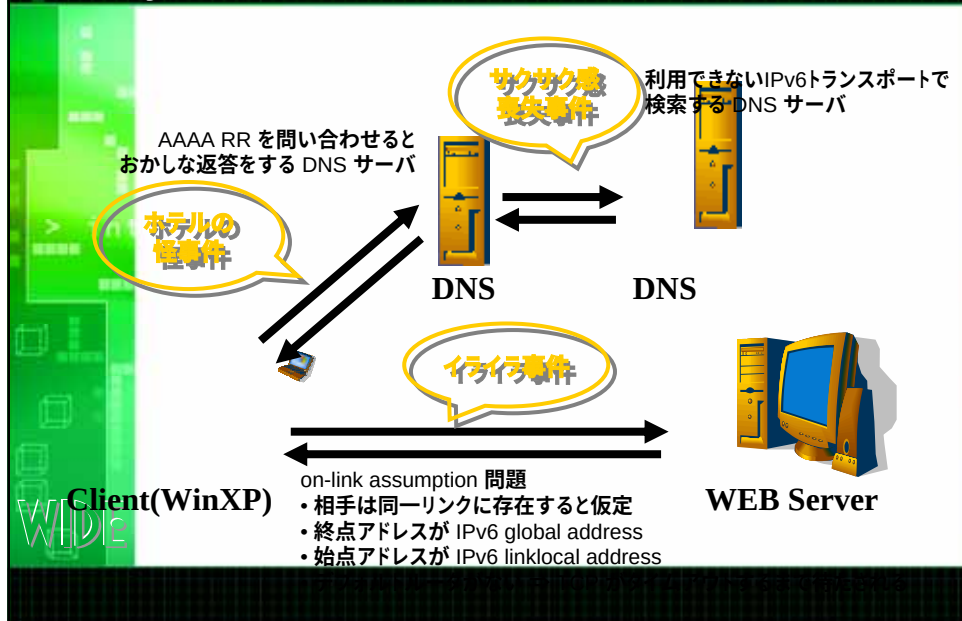
ケース3：イライラ事件

- Fedora core 2 上の Mozilla1.7で、
あるページにアクセスすると随分待たされる
- Mozilla1.7のリリースノートには、カーネルのIPv6の機能を停止しろと書かれている

IPv6 の仕様の問題



Why?

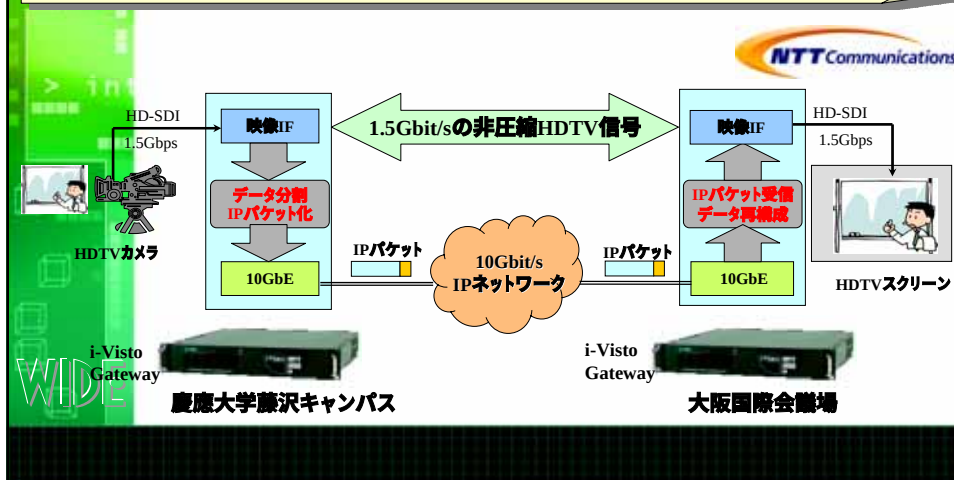


Video and Audio

Real-time HD over IP with “i-Visto”

i-Visto (アイビスト) : Internet video studio system for HDTV production

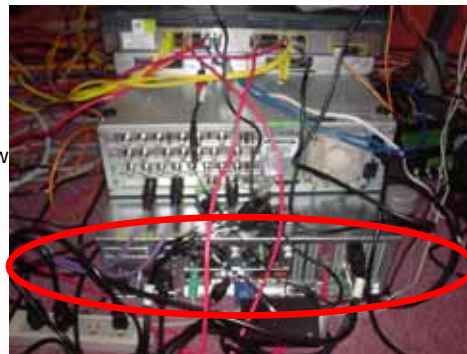
NTTコミュニケーションズが提供する非圧縮HDTV(1.5Gbps),SDTV(270Mbps)等の高品質な映像信号をIPネットワーク上の複数の拠点間でリアルタイムに伝送する装置



iHD1500

- UWTV(Research Channel)がAJAと協力して作成した非圧縮HDTVをIP上でリアルタイムに伝送する装置

- Intel Xeon 3.2GHz * 2
- SCSI RAID5
- 2GB MEM
- Intel PRO/1000 MT Dual
- AJA Video XENA DXT (New Rev)
- Windows XP Pro
- cygwin



NA3000/HE1000/HD1000

- NTTエレクトロニクス製MPEG-2/HD映像伝送装置

- NA3000

- 最大4本のMPEG-2ストリームをIPで伝送
 - 伝送はRTP/UDP, unicast/multicast対応
 - パケットサイズは32KByteまで可変
 - MPEG-2入出力はDVB-ASIを利用し、エンコーダ、デコーダと接続
 - MPEG-2入力はパケット方式及びバースト方式(出力:パケット方式)

- HE1000

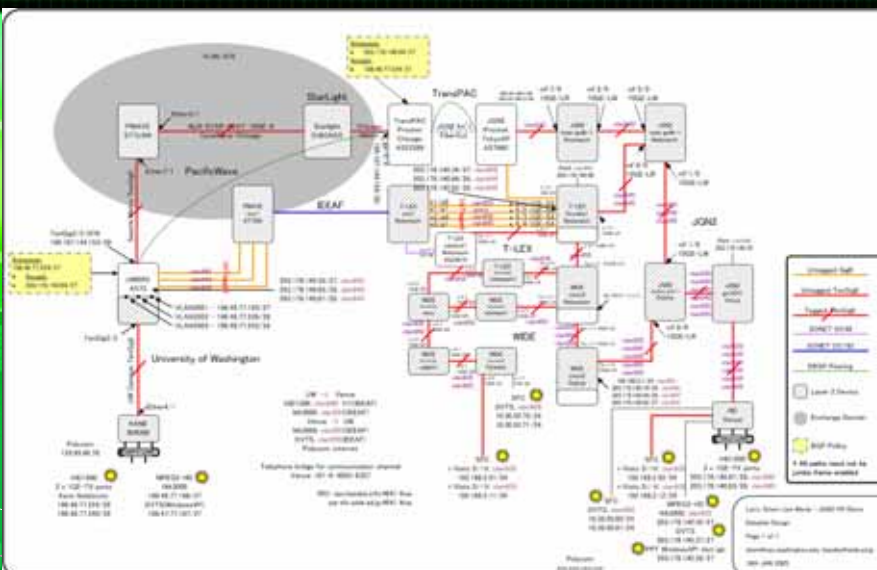
- 映像入力フォーマット:HD-SDI(SMPTE292M)
 - 映像プロファイル、レベル:MP@HL, 422P@HL
 - 映像フォーマット:1080i(1920x1080,29.97fps)、720p(1280x720,59.94fps)に対応
 - 信号フォーマット:4:2:0、4:2:2の圧縮が可能
 - 音声入力方式:AES/EBU
 - MUX機能



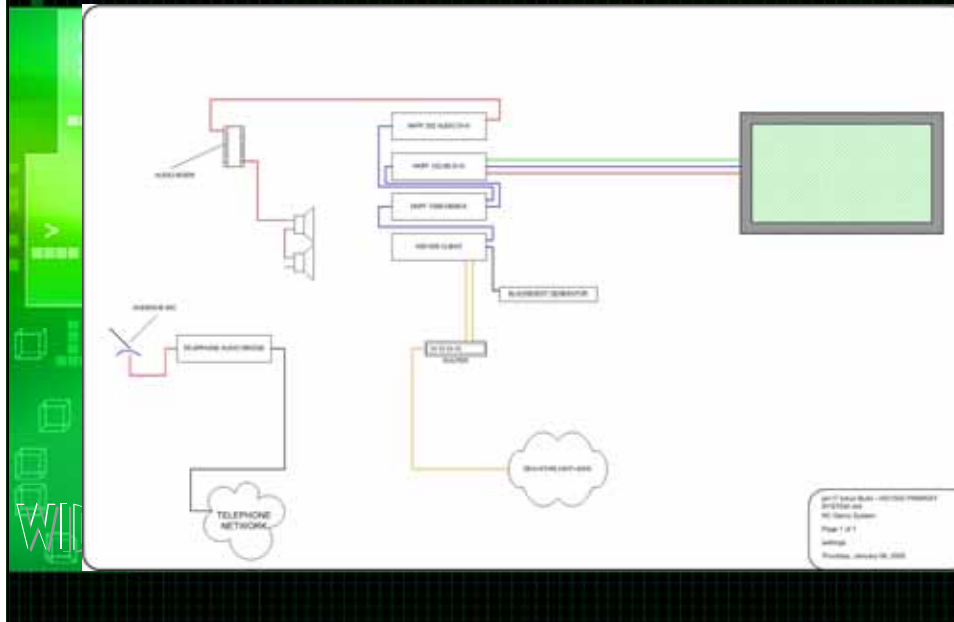
- HD1000

- 映像出力フォーマット:HD-SDI, Y,Pb,Pr
 - 映像プロファイル、レベル:MP@HL, 422P@HL
 - 音声出力方式:AES/EBU
 - DEMUX機能
 - 映像フォーマット:1080i, 720p, 480i(ダウンコンバート可能)

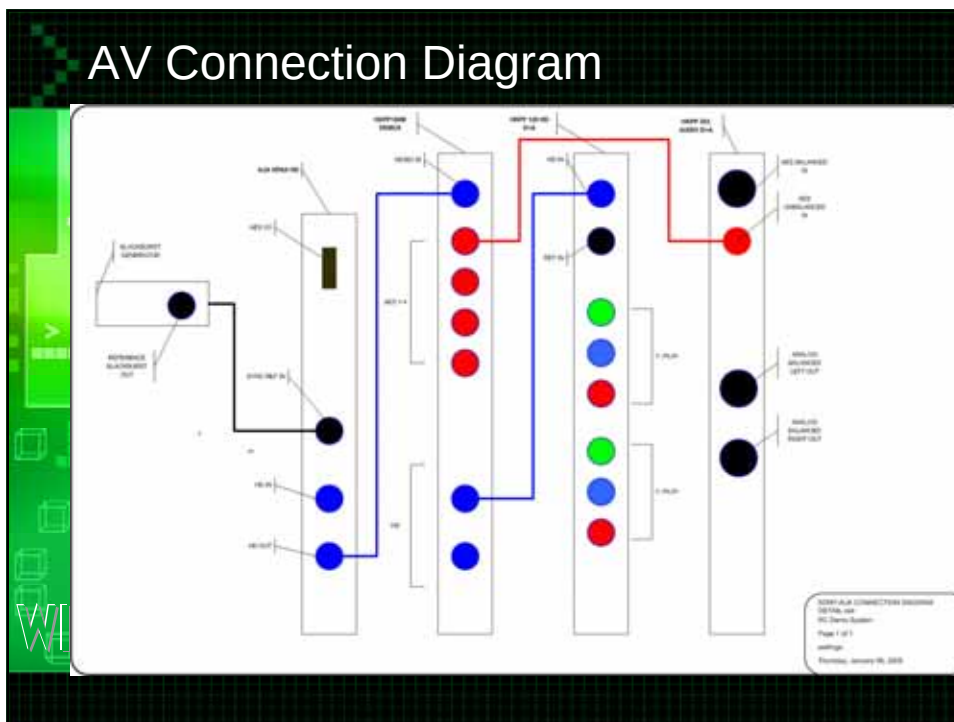
Network Diagram



AV Connection Diagram



AV Connection Diagram



AV Connection Diagram

The diagram illustrates an AV system architecture. A laptop on the left is connected to a central hub. This hub is linked to two sets of AV processors, each consisting of an 'AVT 100 1000 1000 1000 1000 1000' unit and an 'AVT 1000 1000 1000 1000 1000 1000' unit. A cloud storage icon is also connected to the central hub. The system is connected to a large display screen on the right. A green sidebar on the left contains navigation icons and the text 'WID'. A footer box in the bottom right corner contains the following text:

AVT 1000 1000 1000 1000 1000 1000
 AVT 1000 1000 1000 1000 1000 1000
 Page 1 of 1
 AVT 1000 1000 1000 1000 1000 1000
 Thursday, January 10, 2025

Information Web

AV Equipment



i-Visto



Barco DLP Projector



iHD1500/NA3000/DVTS



AV Control

UW



NA3000



iHD1500



AV Control room



SDTV from Venue

Venue



UW studio

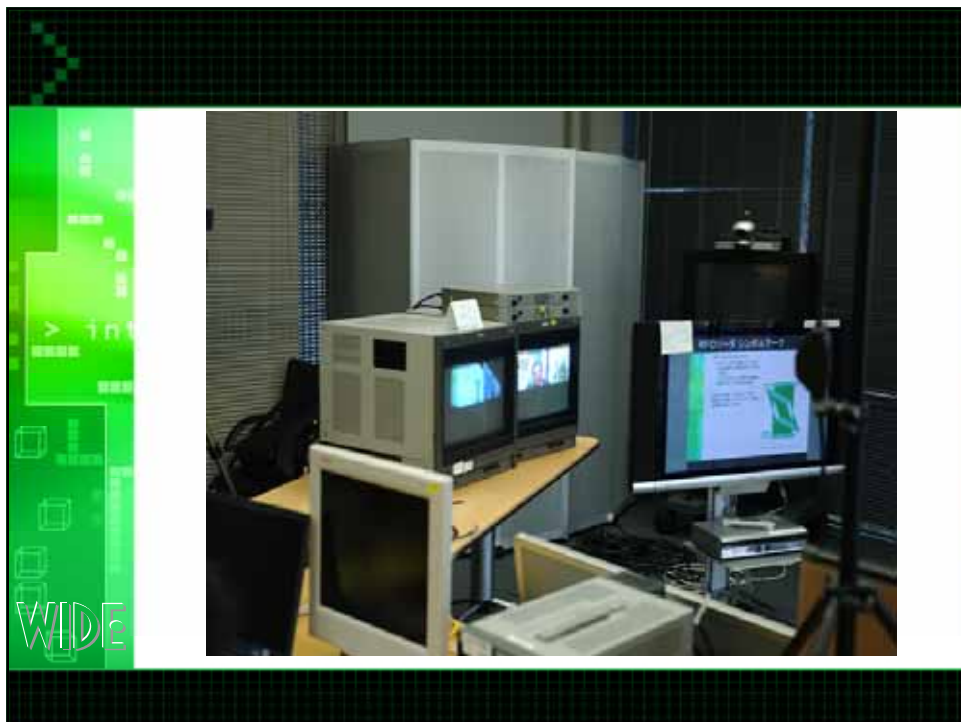
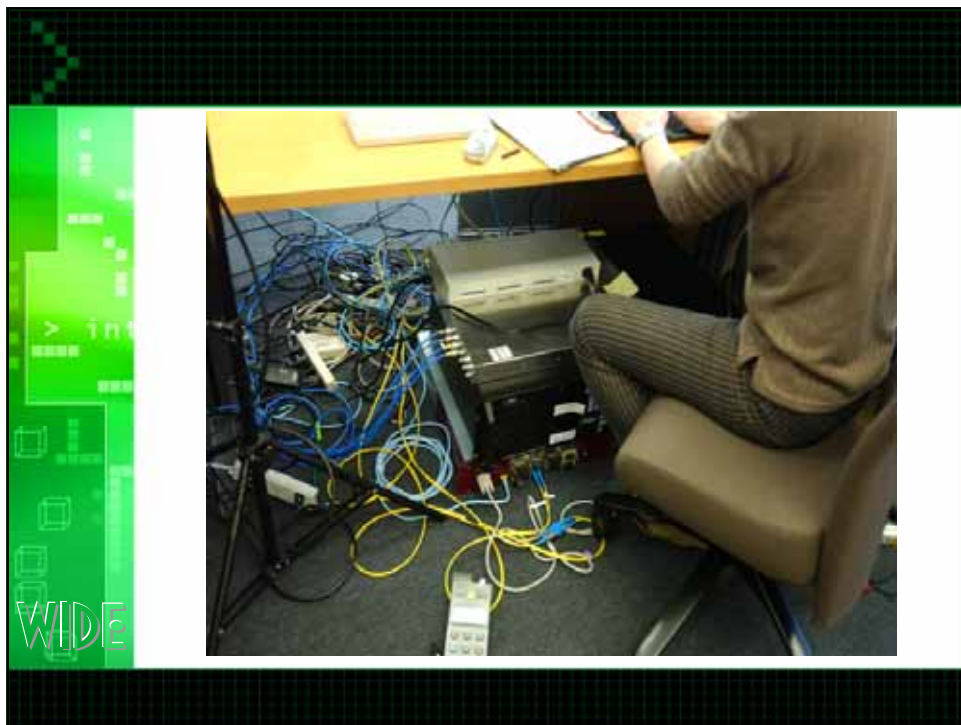


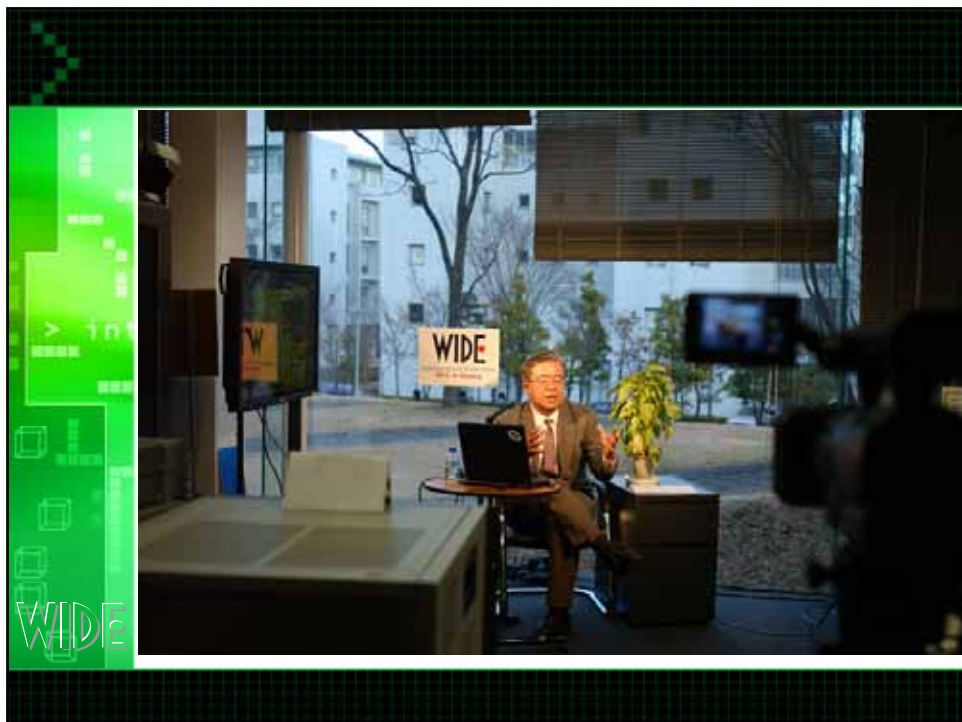
SFC/KEIO



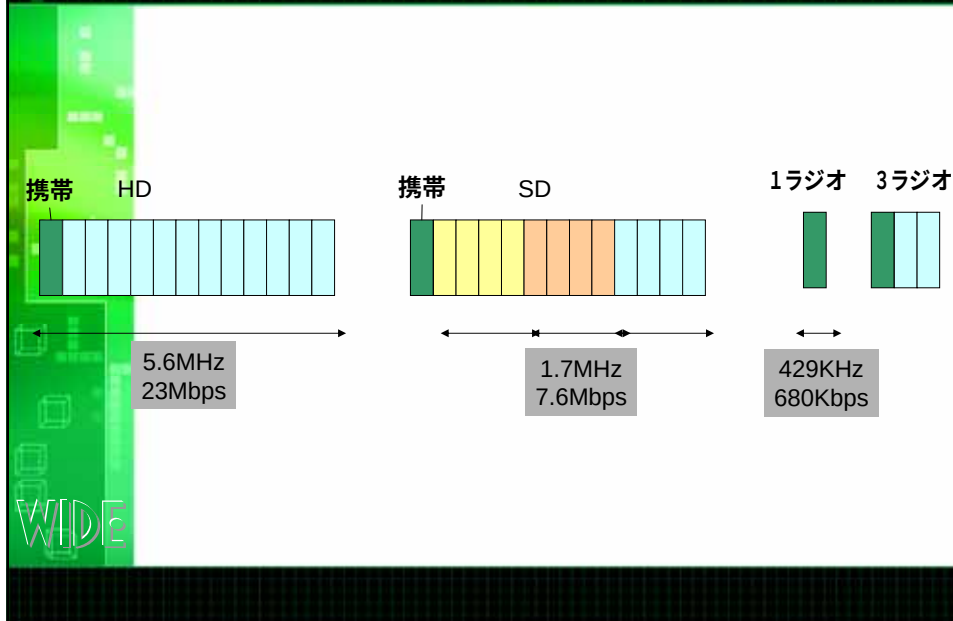
SFC, KEIO Univ





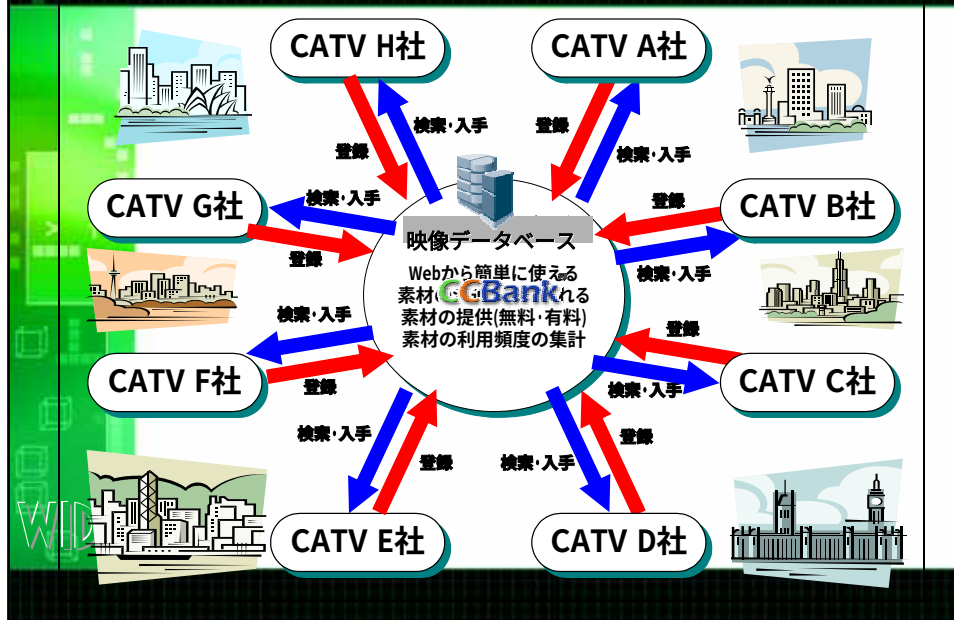


Allocation for Digital Broadcasting System

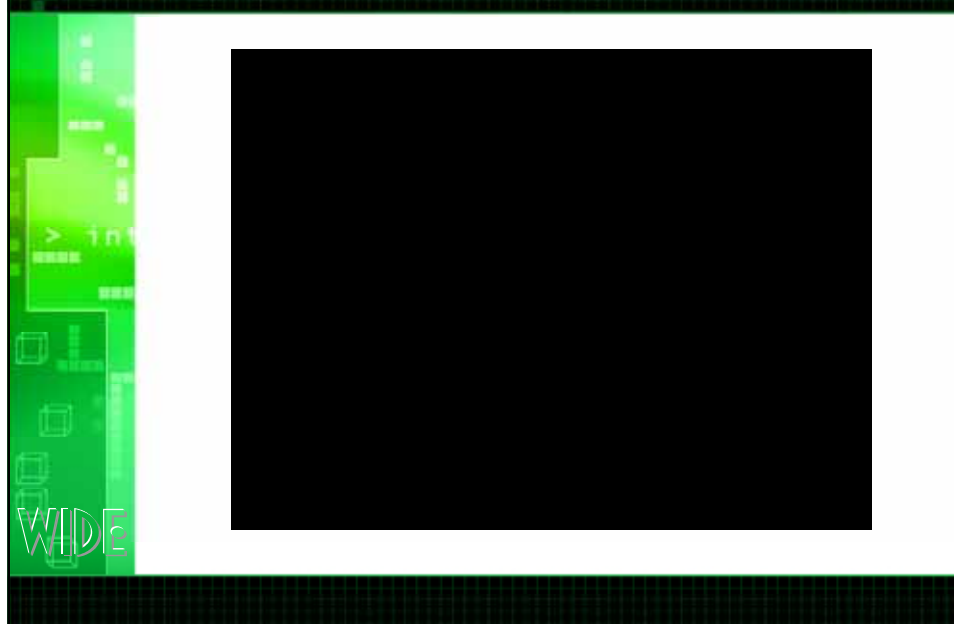




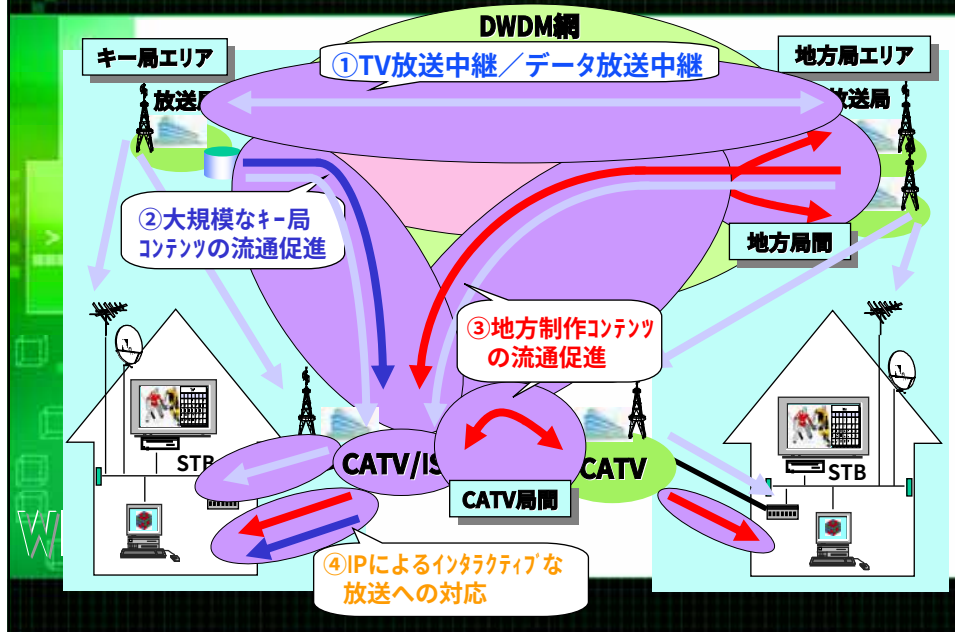
実証実験イメージ



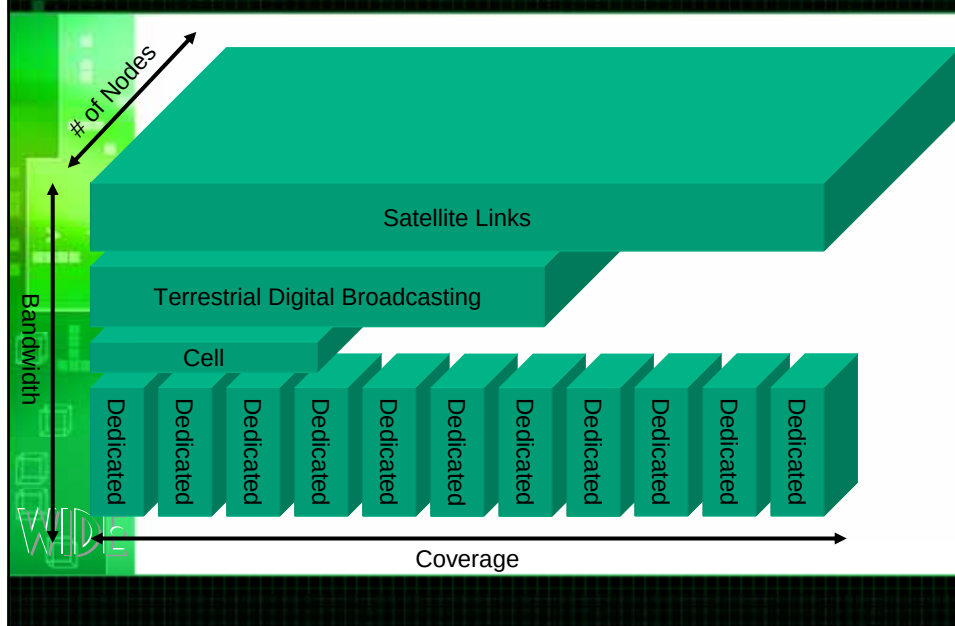
CATV: LIVE Broadcast over IP

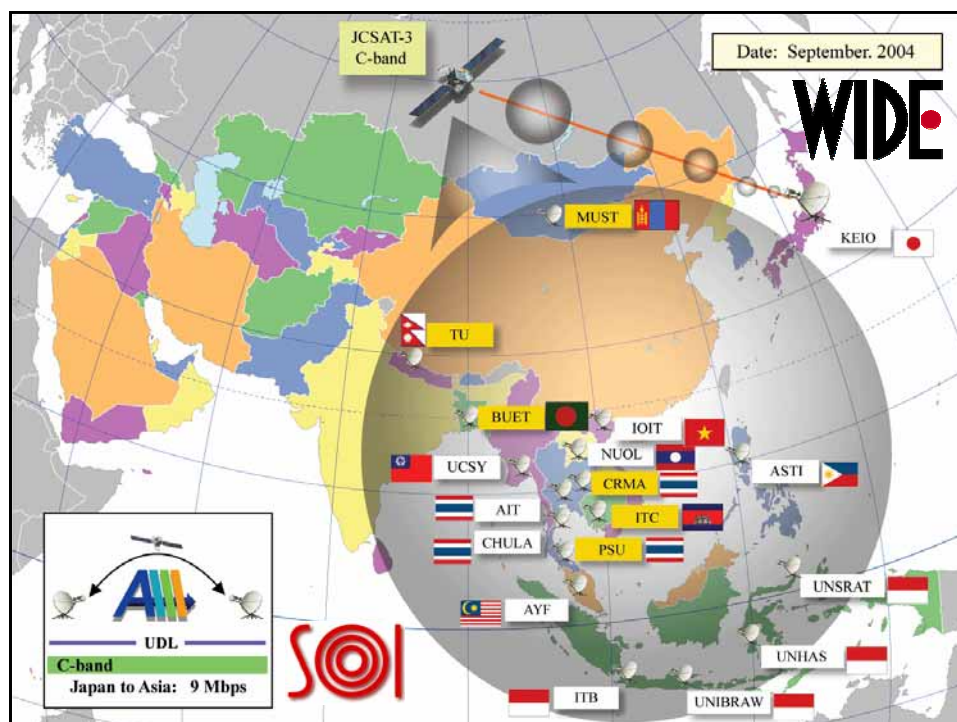
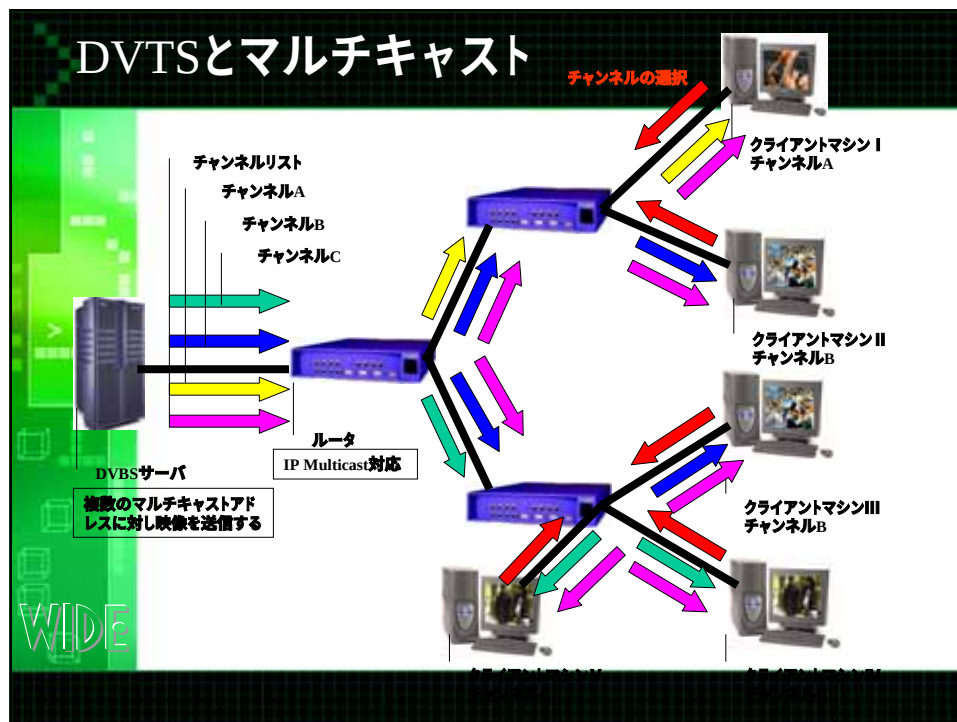


TV system is changing with Internet



ブロードキャストメディアの魅力





Interactive Discussion on “Interactive Distance Education”

July 2nd 2003

Participants from;

KEIO, Japan
UCSY, Myanmar
ASTI, Philippine
ITB, Indonesia
AFY, Malaysia
NUOL, Laos



WIDE

ASTI/フィリピン

ITB/インドネシア

UCSY/ミャンマー



NUOL/ラオス

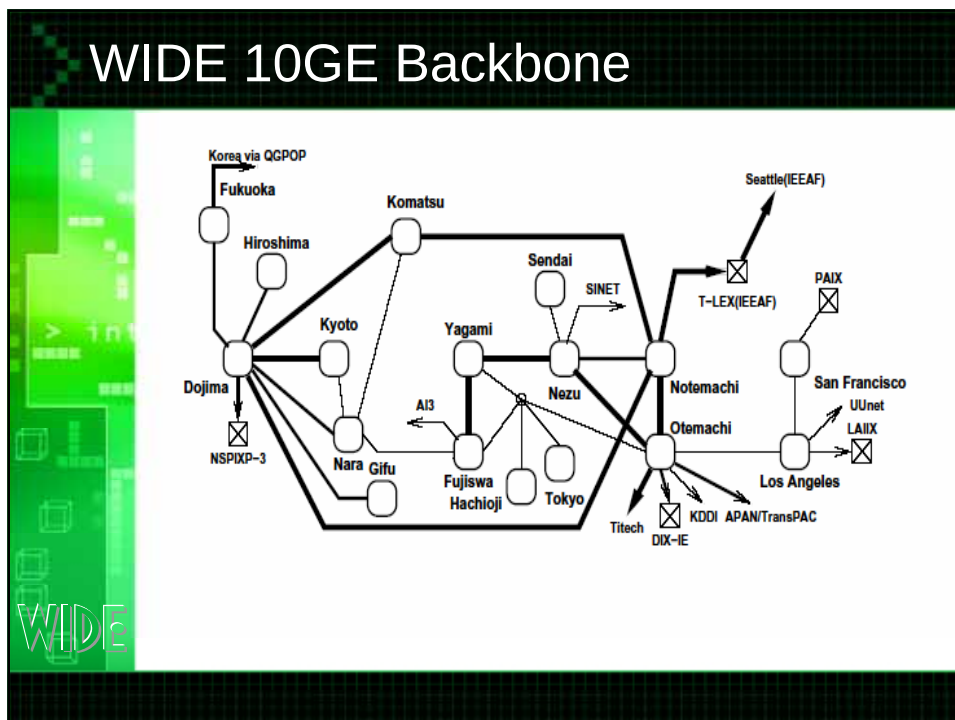
AYF,HELP/マレーシア

SFC/日本



MeSci/日本

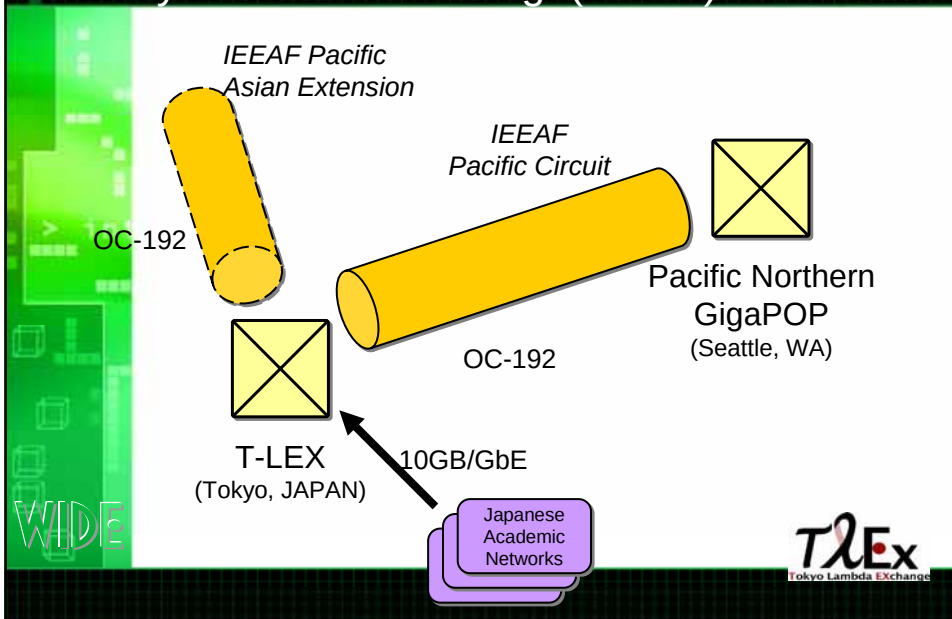
WIDE



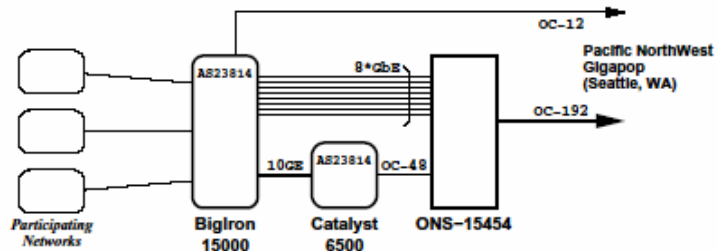
T-LEX/IEEAF Press conference



Tokyo Lambda Exchange(T-LEX)



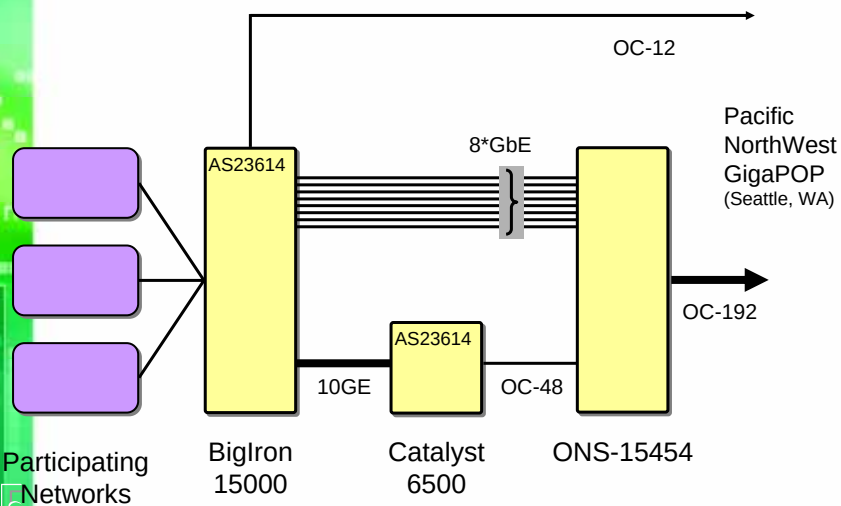
T-LEX Configuration



- BigIron-15000: 16*GbE, 3*10GE, 2*OC12-POS
- Provides L2 switch as well as IPv4 L3
- Catalyst 6500: OC-48, 4*10GE, 6*GbE
- Provides OC-48 as well as IPv6 L3

WIDE

The current configuration internal to T-LEX



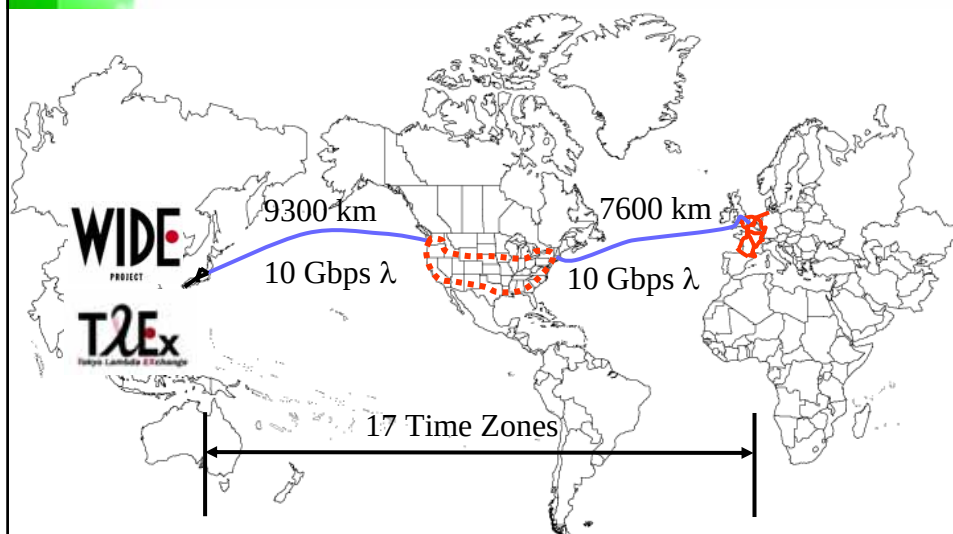
WIDE

Current Participants of T-LEX

Participant	ASN	Access	IPv4	IPv6	Status
WIDE Project	2500	10GE	YES	YES	Operational
Dragon Tap	9407	FE	YES	YES	Operational
APAN-JP	7660	10GE	YES	YES	Operational
MAFFIN	18125	GbE	YES	YES	Operational
SINET	2907	GbE	YES	?	connected soon
JGN2	N.A.	10GE	N.A.	N.A.	connected soon

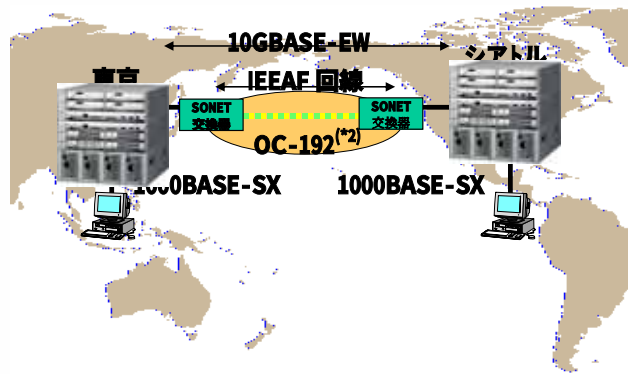
WIDE

WIDE-IEEEAF Lambda Internet

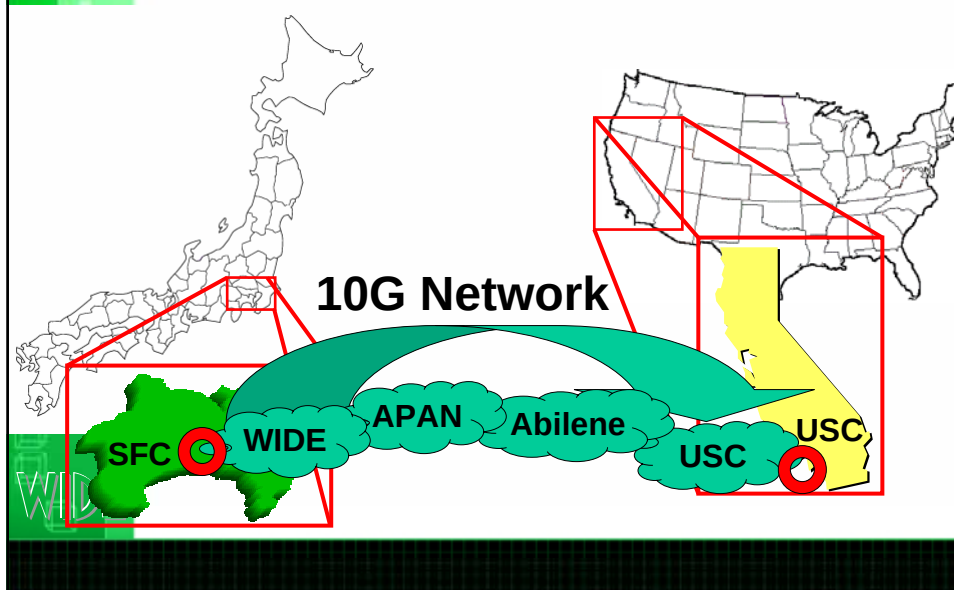


IEEAF Wan-Phy test: Seattle-Tokyo

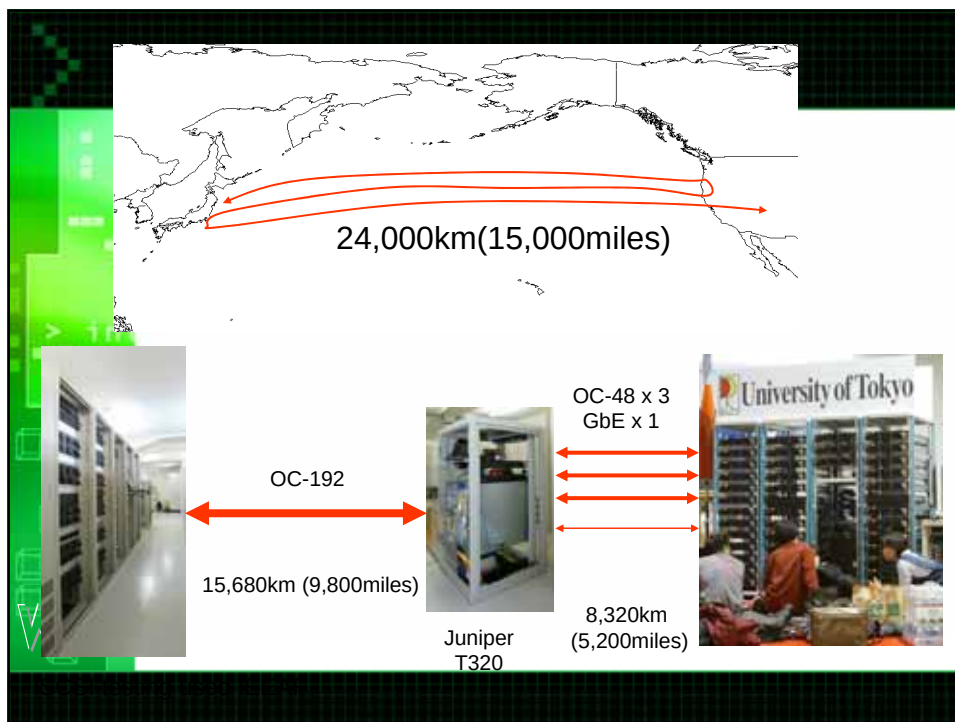
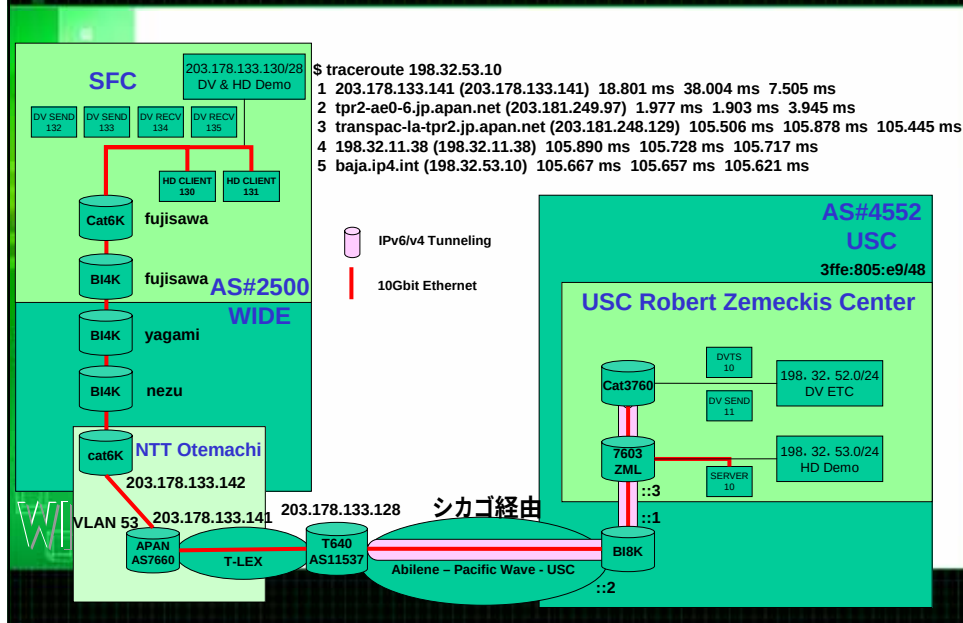
- The first 10GbE WAN-PHY btwn US-JP
- On IEEAF OC-192 Tokyo-Seattle
- Hitachi's WAN-PHY equipment

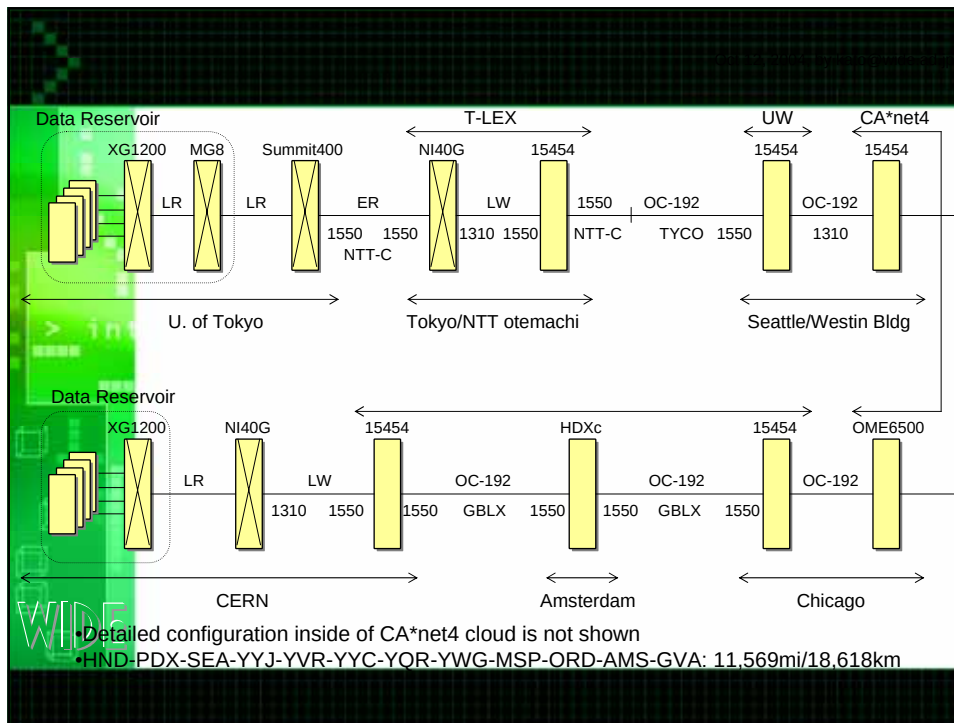


日米間ネットワーク



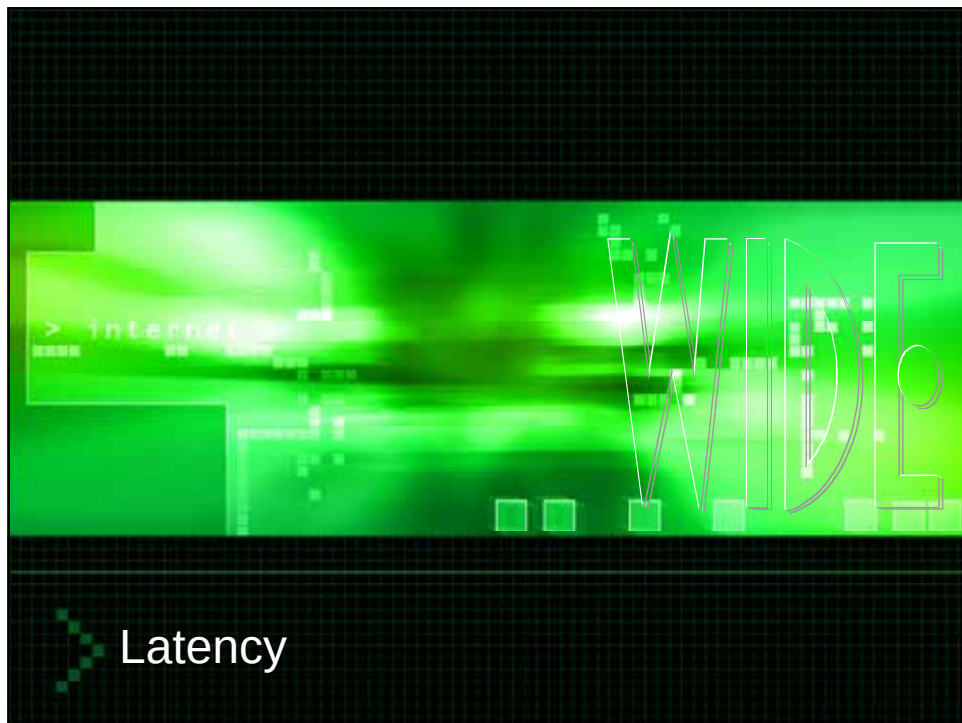
ネットワークポロジ図





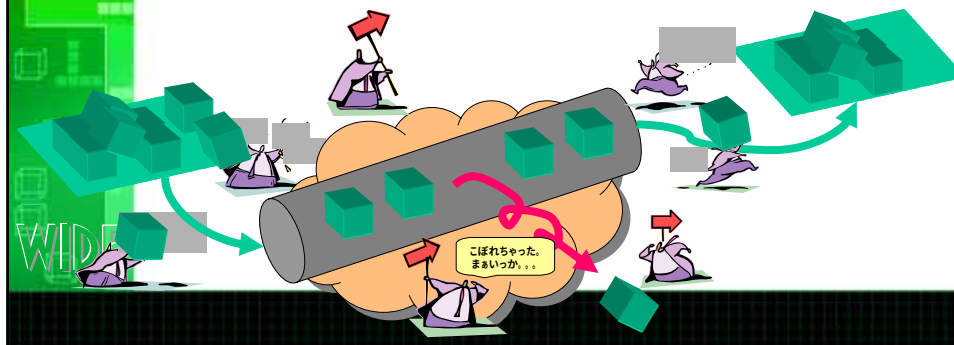
Geneva--Tokyo Application

- Data Reservoir project chaired by Prof. Kei Hiraki
- <http://data-reservoir.adm.s.u-tokyo.ac.jp/>
- Marked 7.57Gbps *single* TCP stream, memory-to-memory
 - Celsio 10GE NIC, TCP off-loaded
 - 1500Byte MTU
- 9Gbps filled by 9 Xeon Servers in each side
 - disk-to-disk

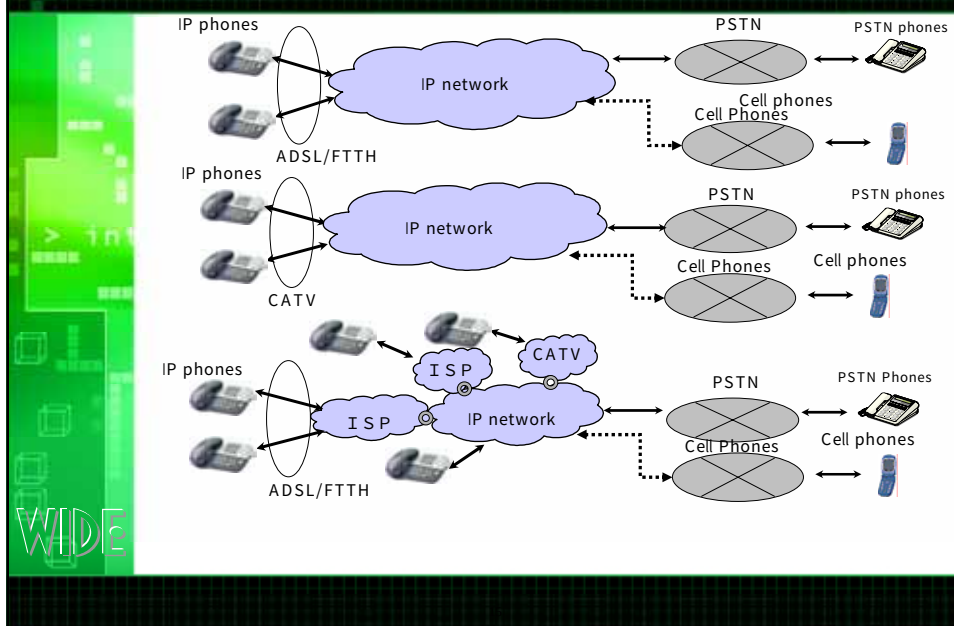


IPの役割

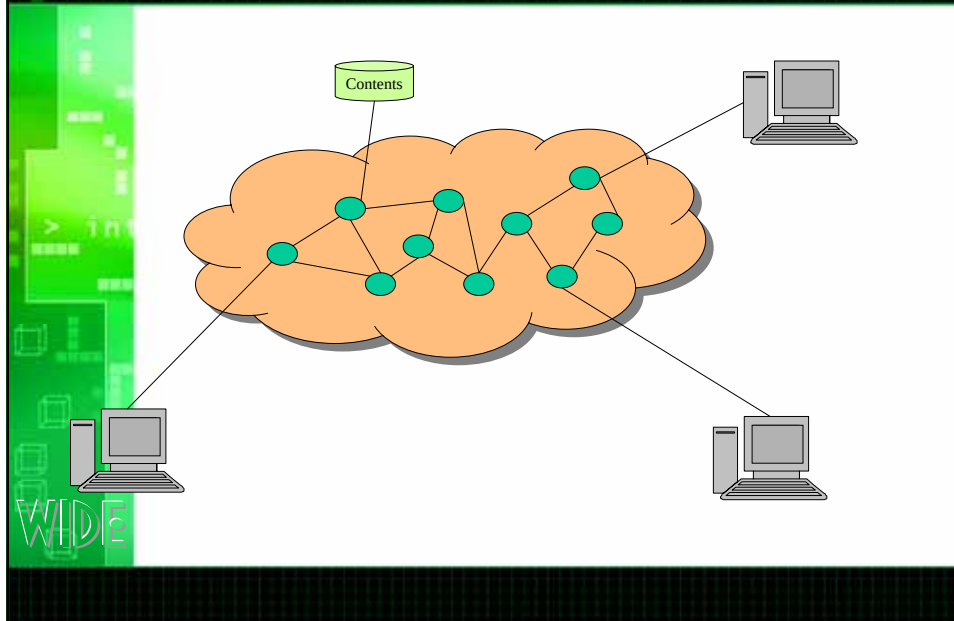
- パケット通信：
 - 混むかもしれない
 - 遅くなるかもしれない
 - でも、結局必ずとどく
 - そして安い！



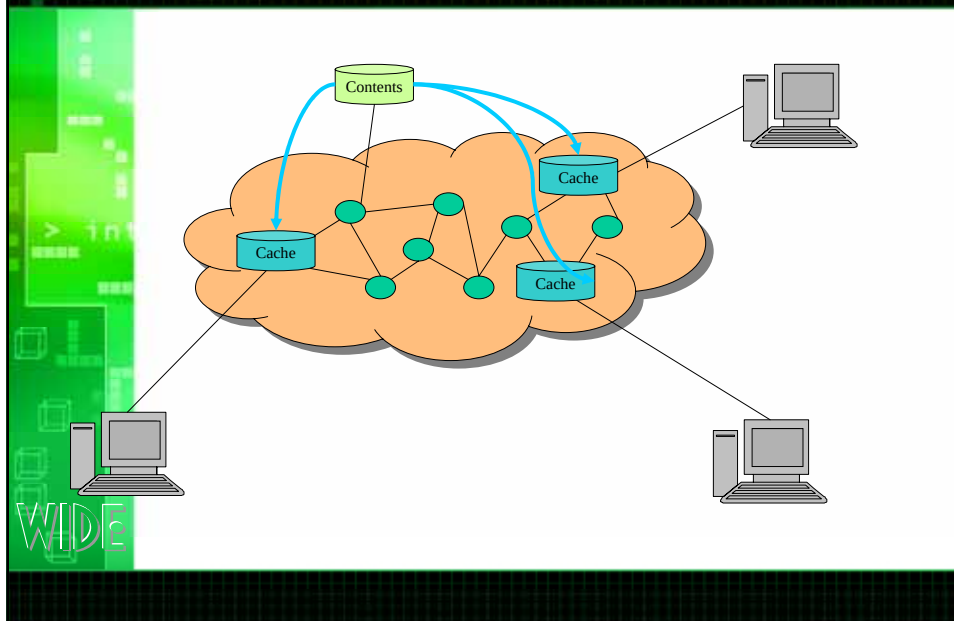
VoIP Evolution



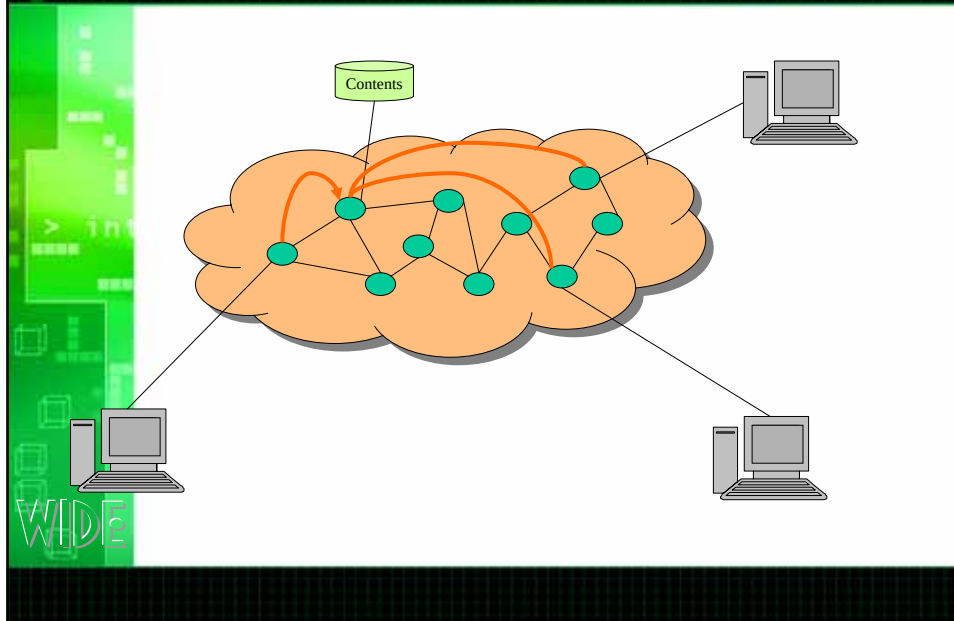
Contents location



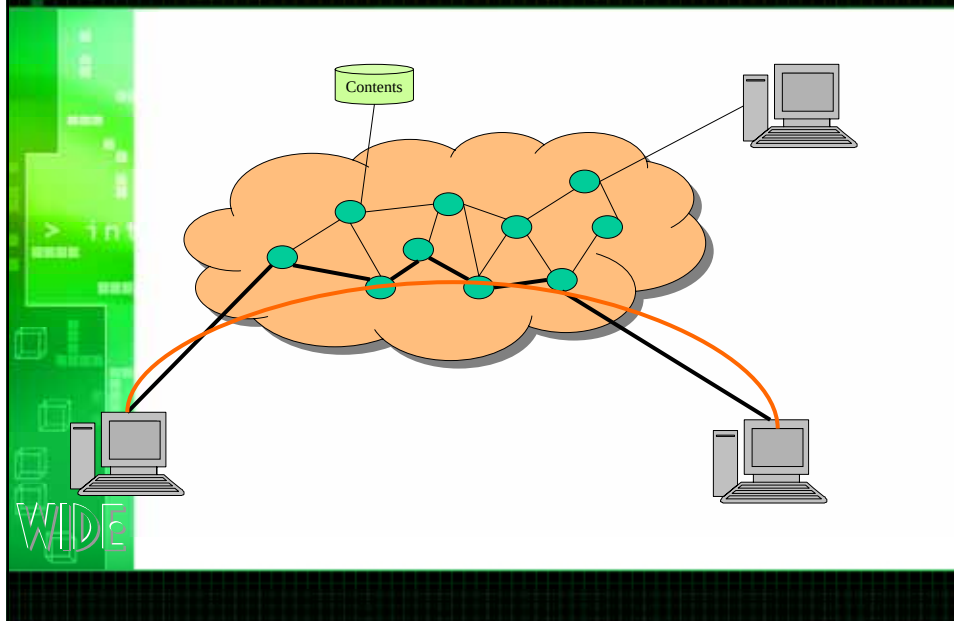
Cache: 'Push data toward users'



Direct path, direct peering



Lambda network: MPLS and beyond

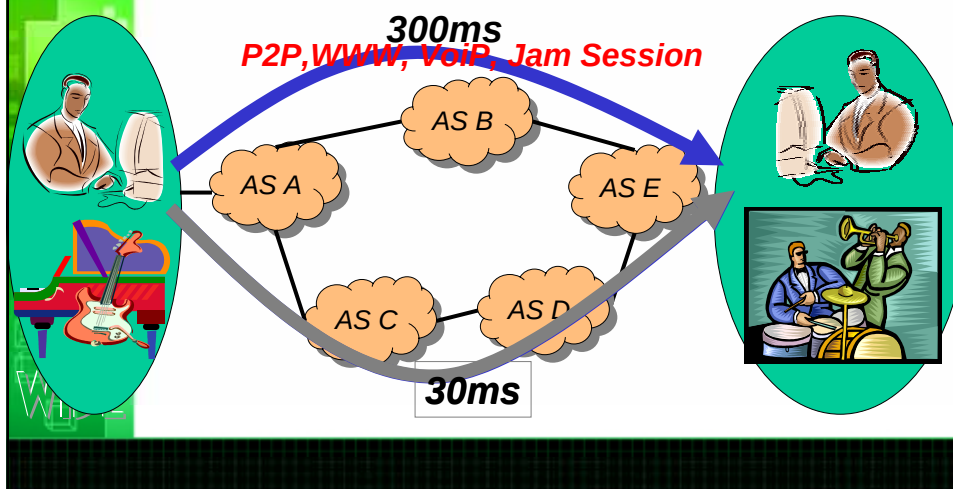


VoIP: 050 regional code criteria

	Class A	Class B	Class C
Trans. Quality	>80	>70	>50
Audio Quality	>86	>73	>50
End-to-End latency	<100ms	<150ms	<400ms

EGP Today..

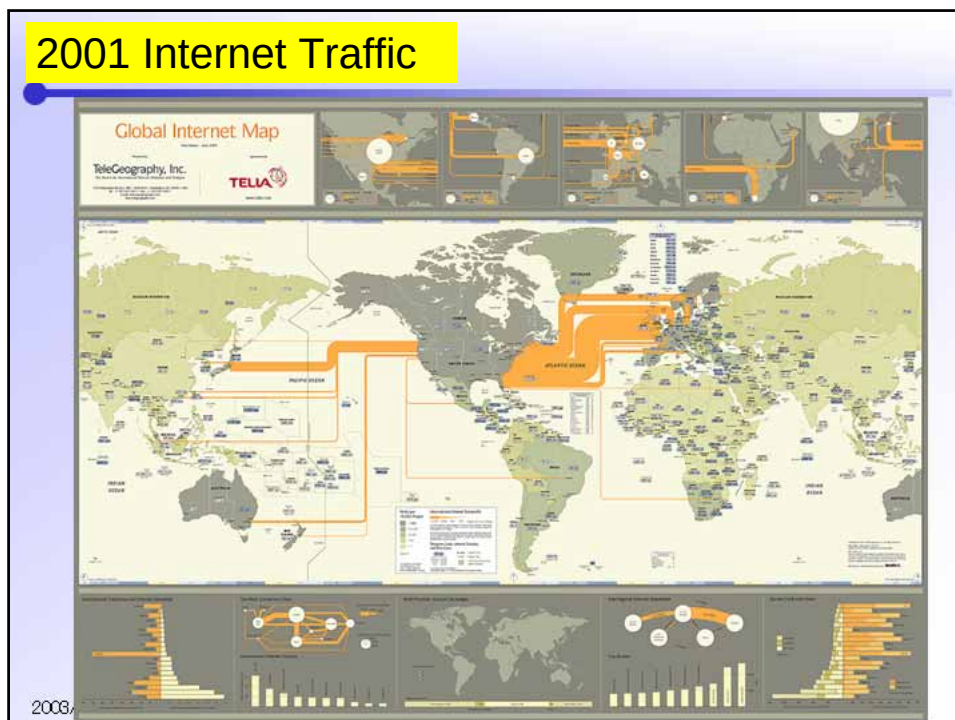
$A \rightarrow B \rightarrow E = 3 < A \rightarrow C \rightarrow D \rightarrow E = 4$

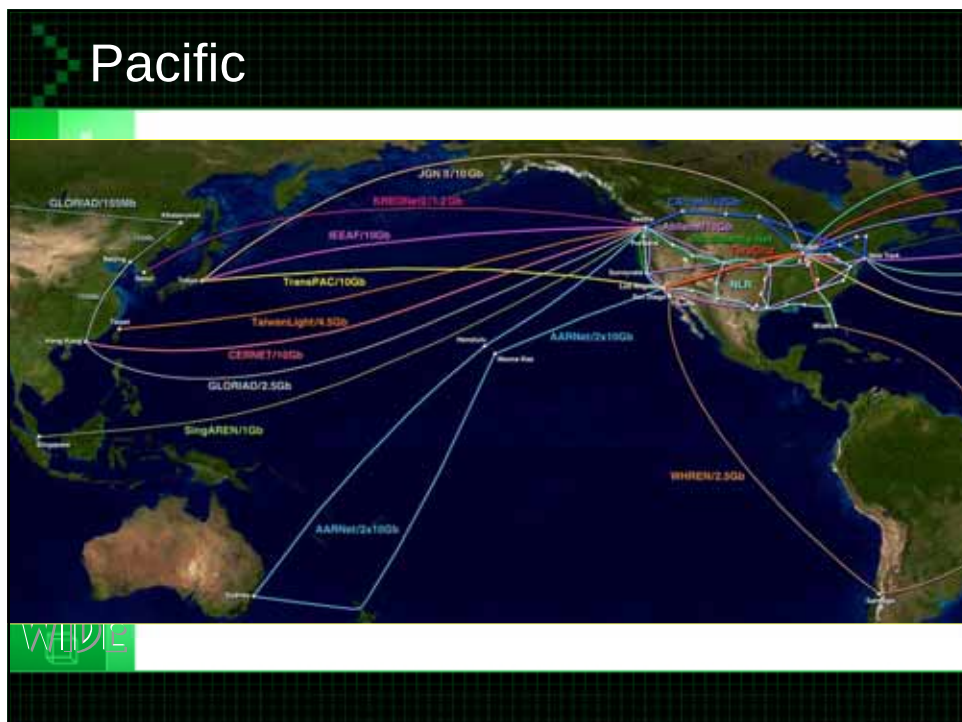


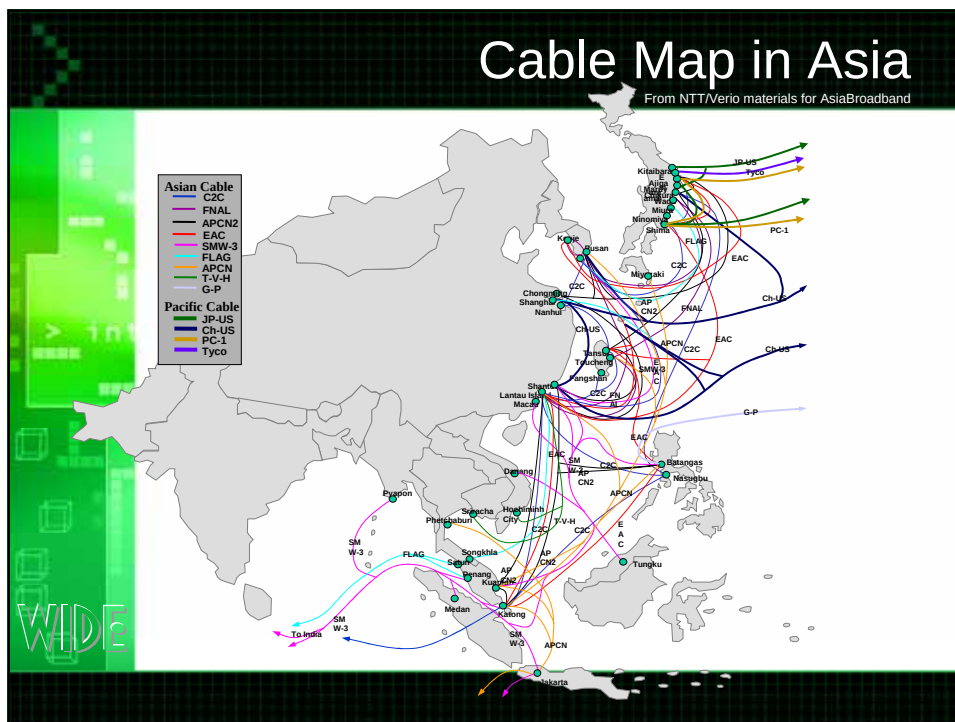
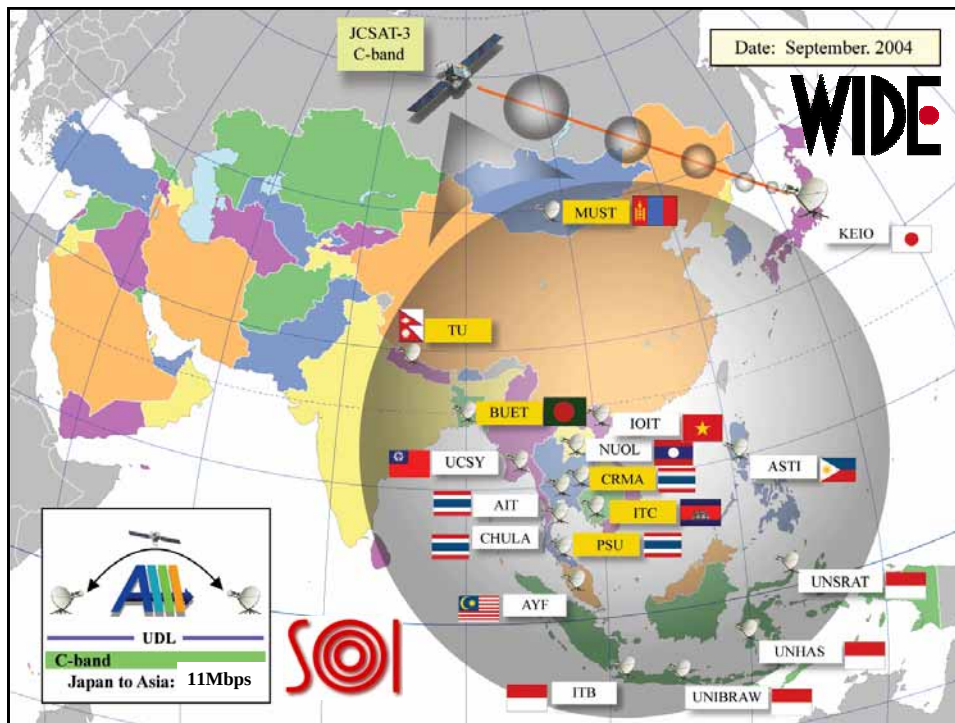
Asia and Europe: Latency?

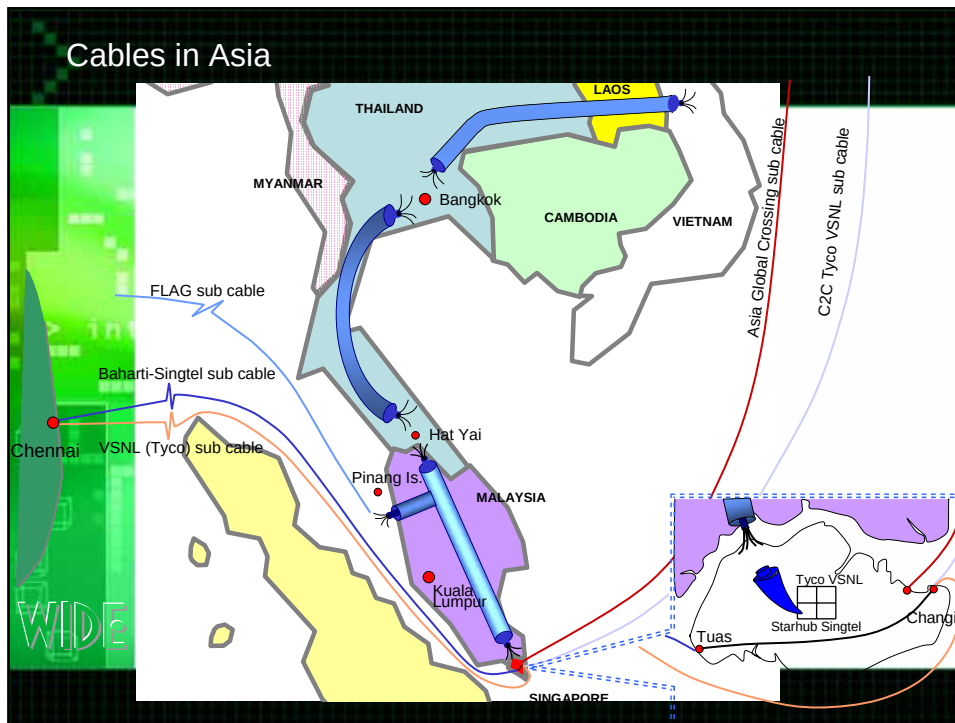


2001 Internet Traffic









SOI ASIA Project

SOI Asia Sharing Knowledge Across Borders
- Tsunami: Lessons Learned and Universities' Role -

Date & Time
Feb 24, 2005 16:30 - 20:30 (JST)

Program
 16:30 - 17:00 Keynote - Prof. Jun Murai
 17:00 - 17:30 Report from Japan (1)
 17:30 - 18:00 Reports from Thailand
 18:10 - 18:40 Report from Japan (2)
 18:40 - 19:10 Report from Indonesia (1)
 19:10 - 19:20 Report from Indonesia (2)
 19:20 - 20:10 Panel Discussion
 20:10 - 20:30 Closing

Panelist Sites
 - Keio University, Japan
 - Tohoku University, Japan
 - Asian Institute of Technology (AIT), Thailand
 (by Dr. Anat in Chulalongkorn University)
 - Institut Teknologi Bandung (ITB), Indonesia
 - Brawijaya University, Indonesia

Other SOI ASIA Partner Sites (Total: 11 countries 17 sites)
 Chulalongkorn University (Thailand) University of Computer Studies, Yangon (Myanmar) Institute of Technology of Cambodia (Cambodia)
 Prince of Songkla University (Thailand) Sam Ratulangi University (Indonesia) Bangladesh University of Engineering and Technology (Bangladesh)
 Chulachomklao Royal Military Academy (Thailand) Hasanuddin University (Indonesia) Mongolian University of Science and Technology (Mongolia)
 National University of Laos (Laos) Institute Of Information Technology (Vietnam) Tribhuvan University (Nepal)
 Advanced Science and Technology Institute (Philippines)

The map shows the geographical distribution of the project's partner sites across Southeast Asia. A red circle indicates the 'Damaged Area by Tsunami'. A satellite link is depicted connecting the panelist sites (red dots) to the partner sites (green dots). The satellite link is labeled 'Multicast on Satellite Link (9Mbps)' and 'DVTS (35Mbps)'. The map also shows the locations of various universities and research institutions involved in the project, including AIT, ITB, UNIBRAW, and several universities in Japan, Thailand, Indonesia, and Cambodia.

Role of Asia-Pacific

Work hard in where new issues exists

