


Interconnection System in Japan (Introduction)



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History of interconnection rules

FY1985 Establishment of Telecommunications Business Law

Competitive Carriers (NCC) entered

Individual carriers set users rates (so-called "chunk rates")

FY1993 Introduction of "End-end pricing"

Interconnection charges was set through negotiations between carriers

FY1997 Amendment of Telecommunications Business Law

(Creation of the Designated Telecommunications Facilities System)

FY1998 Introduction of the rules for interconnection accounting (historical cost method)

Calculate interconnection charges based on costs spent for the operation and management of the designated facilities management which clarified by statute

FY2000 Amendment of Telecommunications Business Law

(Introduction of Long-Run Incremental Costs (LRIC))

The First model

(Published on Sep. 2000, used for calculation of interconnection charges from FY2001 to FY2003)

The Second model

(Published on Sep 2003, used for calculation of interconnection charges from FY2004 to FY2005)

The Third model

(Published on Apr 2004, used for calculation of interconnection charges from FY2006 to FY2008)

Unbundling subscriber line (copper cable)

FY2001 Unbundling Subscriber line (Optical fiber)

Framework of “Designated Telecommunications Facility System”

1 . The general regulation :

Object of the regulation	Substance of the regulation
All telecommunication businesses with their own line facility installations	Telecommunication businesses must, in principle, respond to requests for interconnection from other telecommunication businesses.

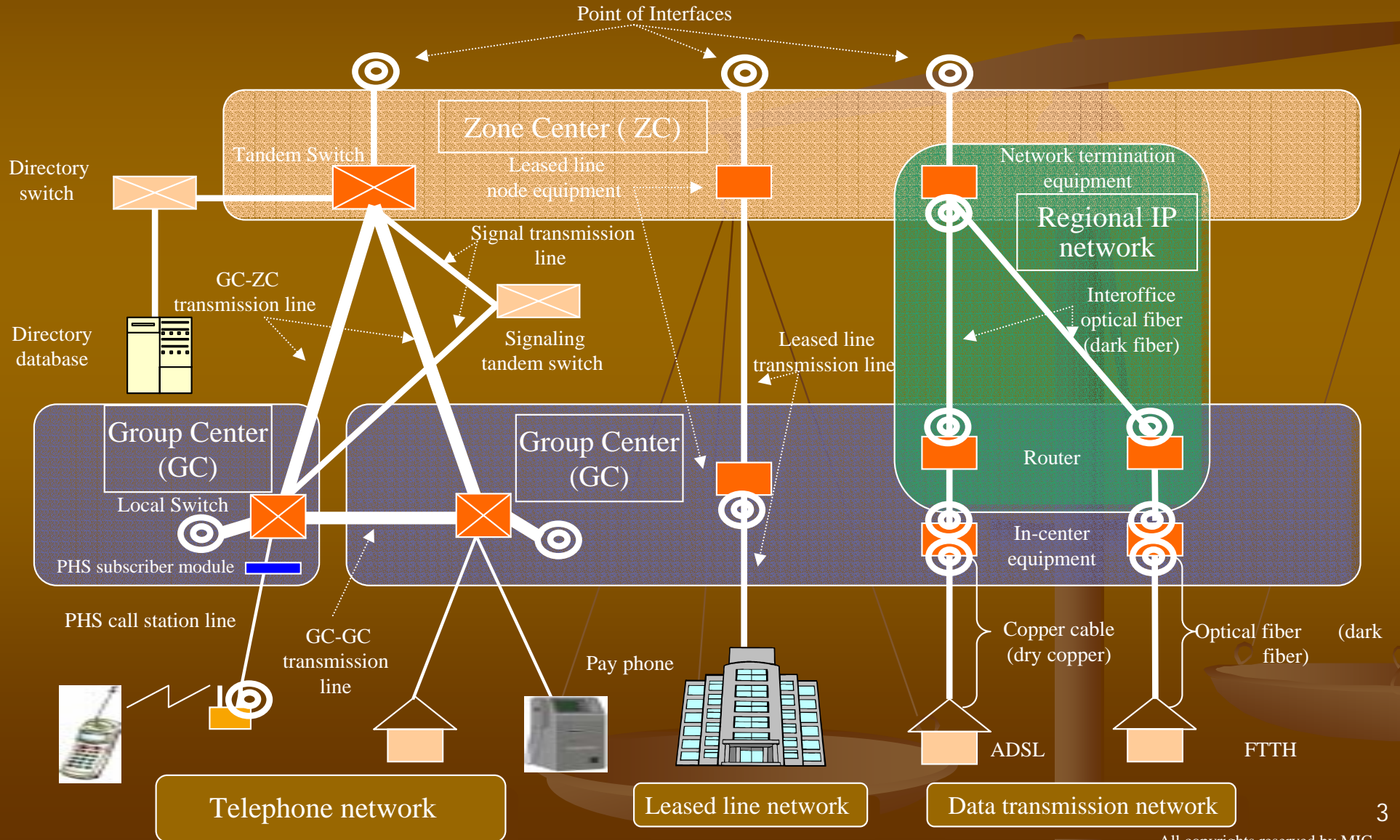
2 . The asymmetric regulation (Designated Telecommunications Facility System) :

	CATEGORY I FACILITY	CATEGORY II FACILITY
Object	Facilities for fixed telecommunication designated as “essential facilities.”	Facilities for mobile communication designated as ones which are not essential but significant number of customers use.
Substance of the regulation	Interconnection tariffs on fees and conditions shall be established and <u>APPROVED</u> .	Interconnection tariffs on fees and conditions shall be established and <u>NOTIFIED</u> .
Prerequisites for specifications	<p>In every prefectural regions:</p> <p>a) The possession of subscriber lines exceeds 50%</p> <p>b) Facilities established as one unit of such subscriber lines.</p> <p>Facilities of NTT E/W is designated in all prefectures.</p>	<p>In every regions where service is provided:</p> <p>a) The possession of subscriber lines exceeds 25%</p> <p>b) Facilities with which mobile service is provided in such regions</p> <p>Facilities of NTT DoCoMo & Okinawa Cellar is designated.</p>

The range of “Category I Designated Telecommunications Facilities”

Category I designated telecommunications facilities are defined by MIC Notice.

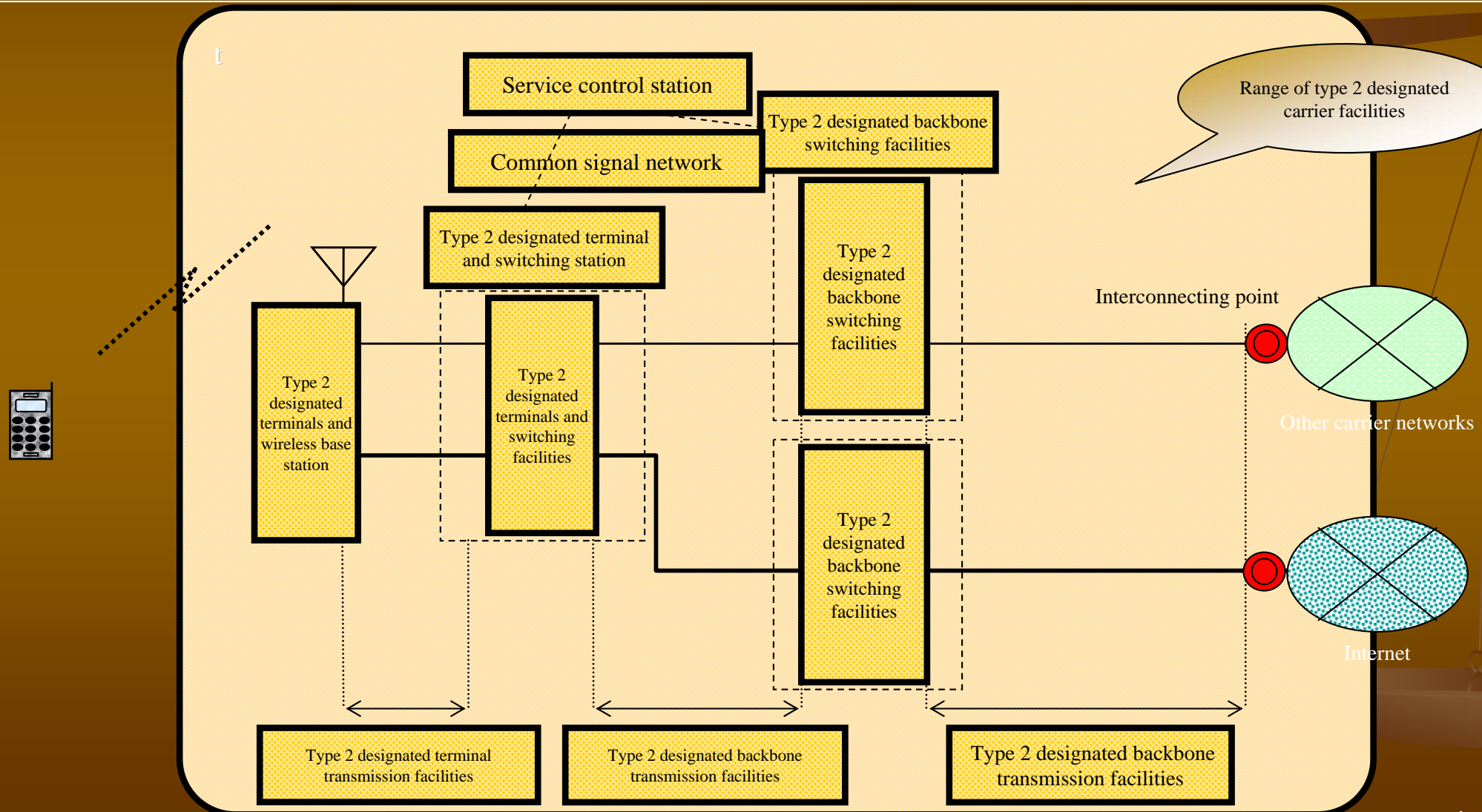
Almost all of NTT E/W’ facilities are designated except for DSLAM & splitter for DSL service and router for IP telephony.



The Range of “Type 2 Designated Carrier Facilities”

Type 2 designated carrier facilities are specified under article 72 of the 2002 MIC notification (carrier facilities that should maintain appropriate and smooth connection rules with other carrier facilities)

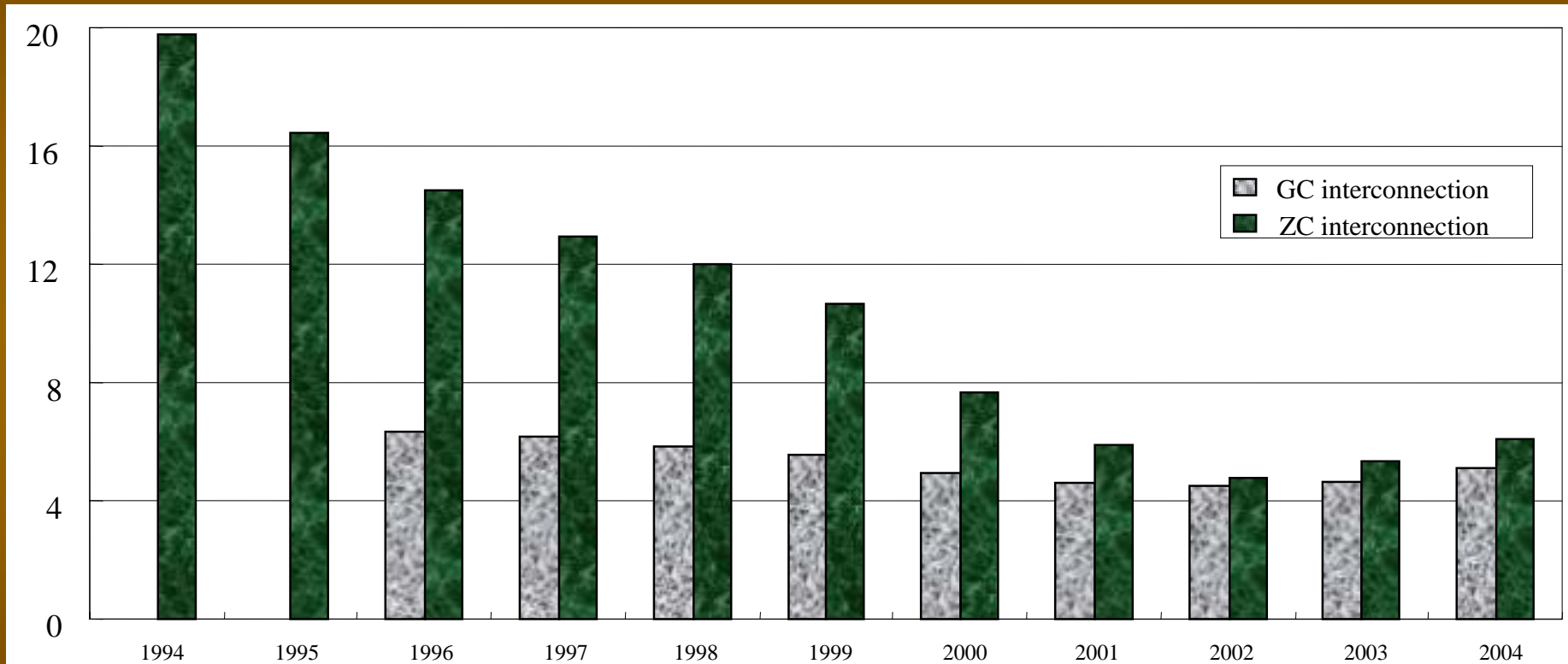
As there is no actual difference in service content between facilities for 3G mobile telephone services and 2G mobile telephone services, they are thought of as the same market and considered to be type 2 designated carrier facilities.



Methods of calculating access charges

Methods		Main objects
Long-Run Incremental Cost method (LRIC)		<ul style="list-style-type: none"> • Local switch • Tandem switch • Interoffice line between Local switch and Tandem switch • Signal transmission network • Access line to PHS base station
Actual cost method	Forward-looking cost method	<ul style="list-style-type: none"> • Subscriber line (optical fiber) • Regional IP network
	Historical cost method	<ul style="list-style-type: none"> • Subscriber line (copper) • Interoffice fiber • Exclusive line • Public phone
Carrier's rate		<ul style="list-style-type: none"> • ISDN subscriber line (INS1500) • Exclusive line

[Yen/3min]



	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
GC	--	--	6.31	6.19	5.81	5.57	4.95	4.60	4.50	4.80	5.18
ZC	19.78	16.45	14.48	12.93	11.98	10.64	7.65	5.88	4.78	5.36	6.17

End-end pricing

Historical costs

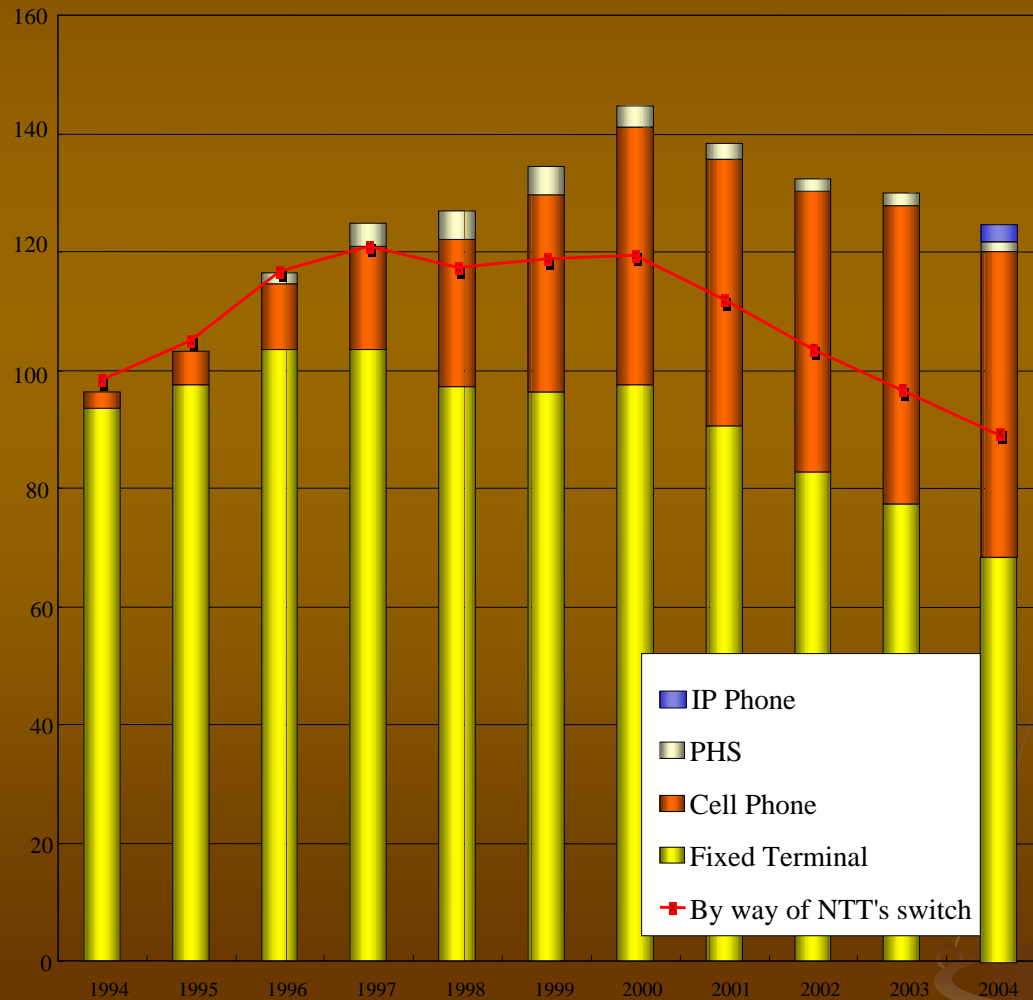
LRIC
(1st model)

LRIC
(2nd model)

Fixed-line traffic volume has been declining by around 15% a year after the peak of FY2000
 Access charge will inevitably increase if the traffic continuously decrease.

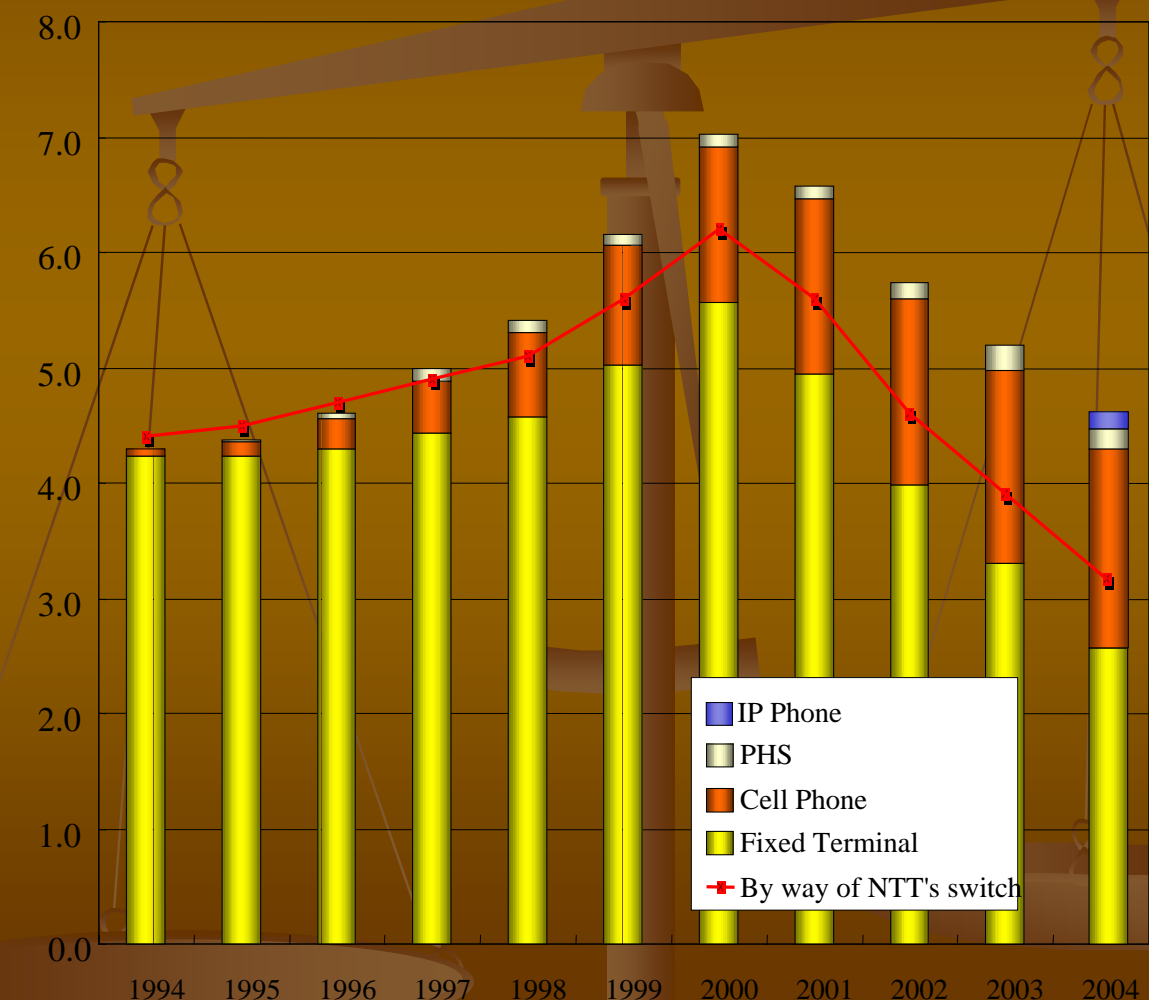
【traffic volume (number of times)】

(1 billion times)



【traffic volume (hours)】

(1 billion hours)



Interconnection charge may exceed phone charge if the volume continuously declines.
 Restrict interconnection charge after FY2005 by reviewing method for calculating cost.

1 Reviewing LRIC model

Reviewing logics such as durable years for new LRIC model applied to FY05-07 (3 years)

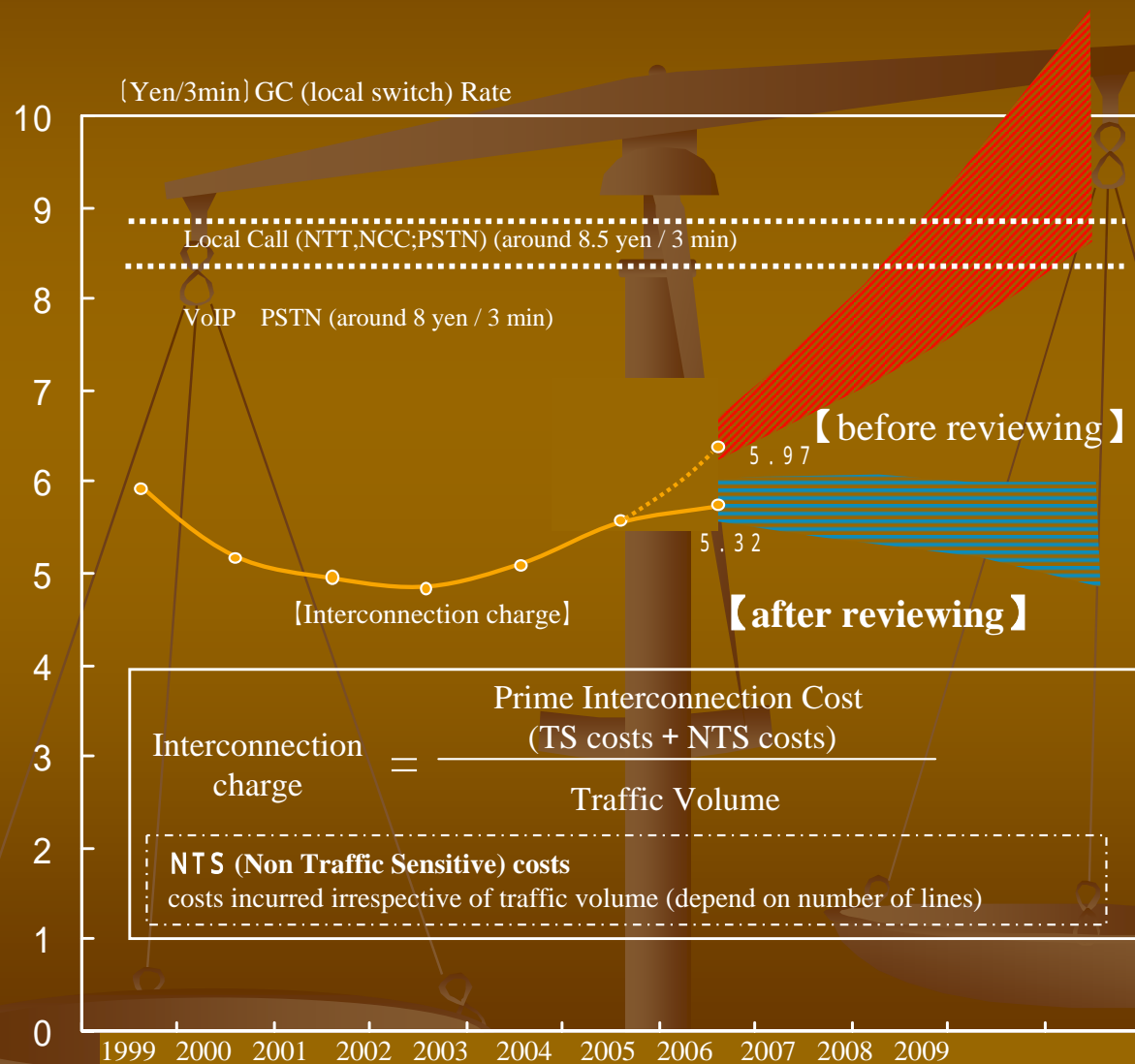
→ more than 10% of cost cut down

2 Deducting NTS costs

Though some Non Traffic Sensitive costs such as subscriber port have been added to the prime cost of the access charge so far, such NTS costs are supposed to be deducted in 5 years

¥60 billion of NTS cost will be

→ deducted every year



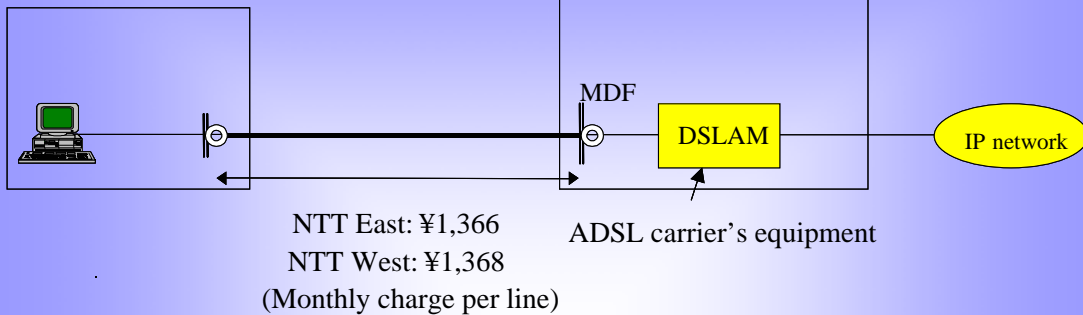
Because of the emerging demand of unbundled subscriber lines for the purpose of supplying broadband service, such as ADSL and FTTH,

- 1) Rules that obligate unbundling subscriber copper cable were established in Sep.2000.
Moreover, Oct.2000, rules concerning co-location at the NTT building were established.
- 2) In Apr. 2001, rules that obligate unbundling optical fiber were established.

Unbundling of Copper Cable (Sept. 2000)

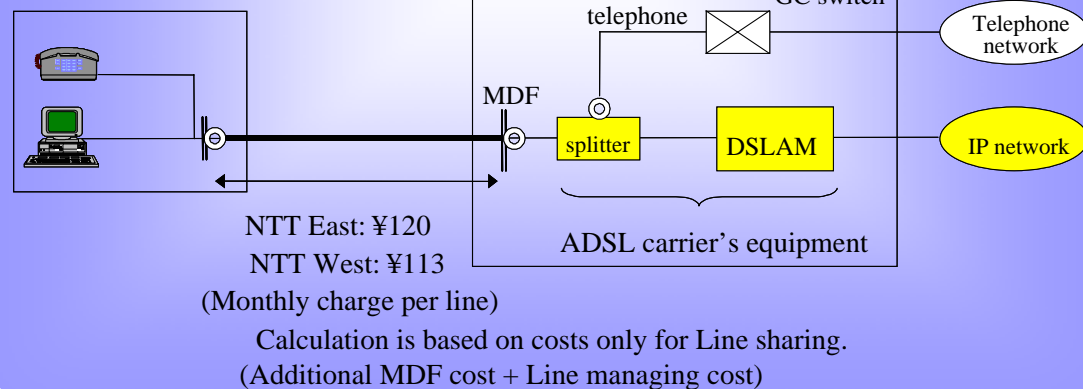
(dry copper)

Subscriber's residence



(Line sharing)

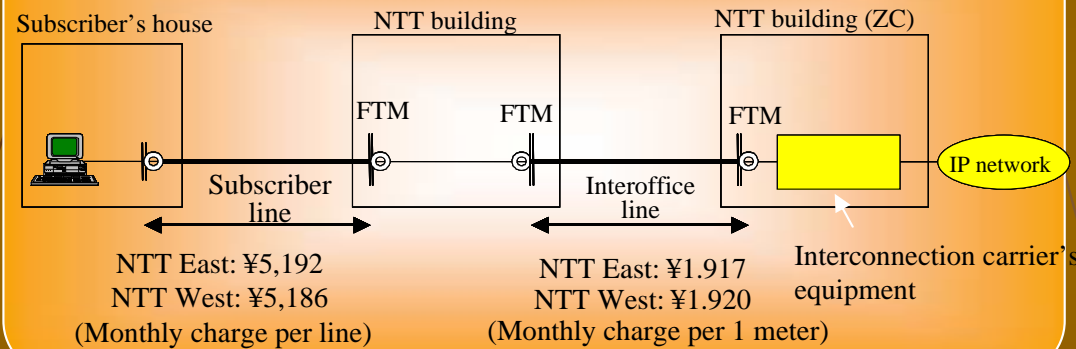
Subscriber's residence



Unbundling of Optical Fiber (April 2001)

(dark fiber)

The interconnection charges are for FY 2004



Co-location Rules (From Sept. 2000~)

- 1) Disclose information on open space
- 2) Set application procedures for construction and maintenance by connecting carriers
- 3) Set up standard period (from timing of survey application to reply, application of installation to starting construction)

Interconnection charges for broadband and transition of broadband subscribers

Interconnection charges for subscriber copper cable and Interoffice optical fiber are re-calculated based on interconnection accounting every fiscal year.

Interconnection charges for subscriber optical fiber are calculated average rates based on expected demands and costs between FY 2001 and 2007. (fixed in 7years)

Consequently, access charges reduction required for broadband service has been realized.

Historical cost method

Interconnection charges are re-calculated based on interconnection accounting every fiscal year

Line-sharing

¥ 187 [FY2000] ¥ 120 [FY2004]

Dry-copper

¥2,062 [FY2000] ¥1,366 [FY2004]

(including line management charges)

Interoffice optical fiber

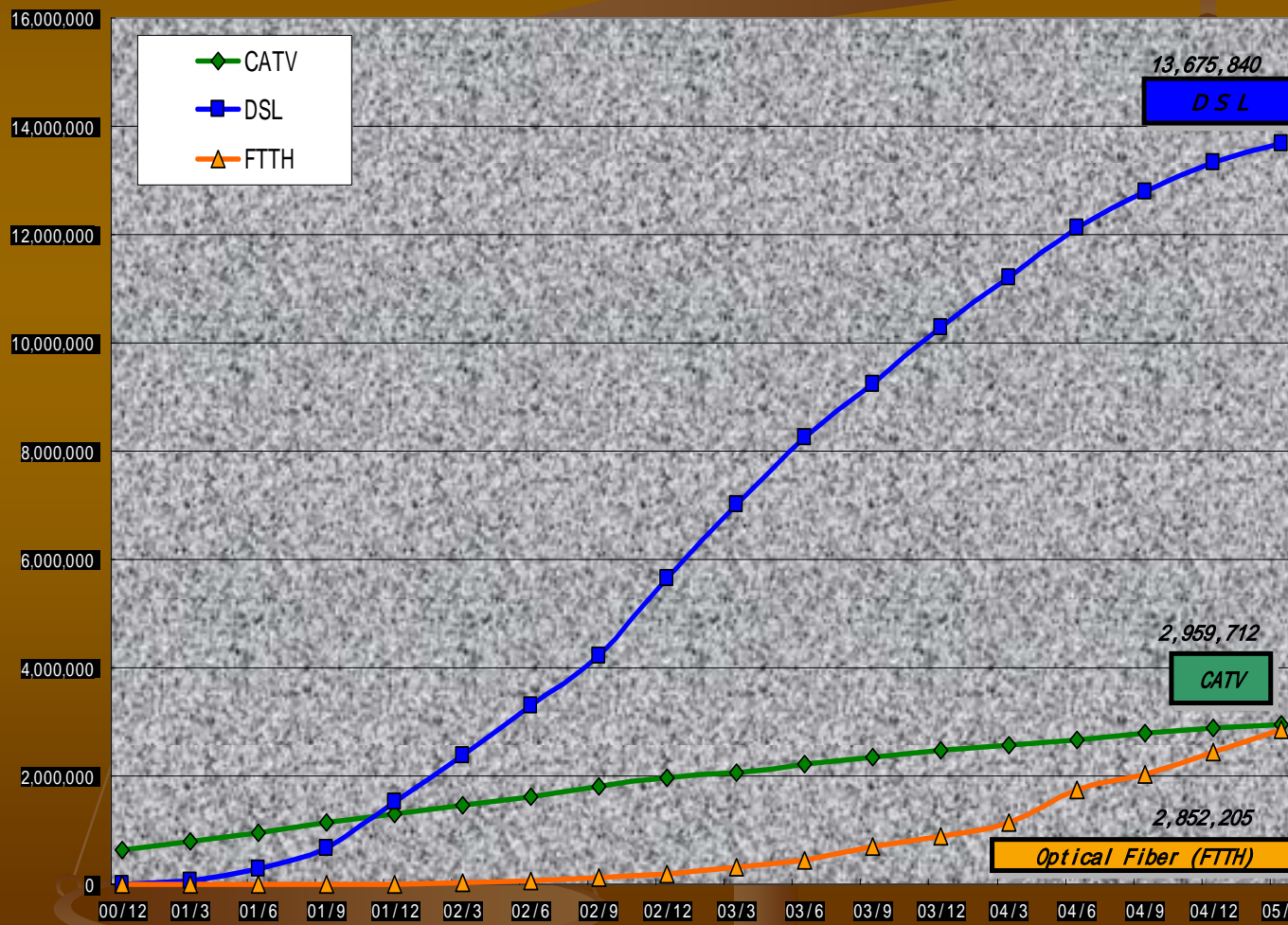
¥4.29/m [FY2000] ¥1.917/m [FY2004]

Forward-looking cost method

For reducing interconnection charges level, Interconnection charges are calculated based on average cost between FY2001 and 2007.

Subscriber optical fiber

¥5,074 (costs per one-core: ¥19,585 [FY2001]) + line management charges



NB: After Jun 2004, subscribers are counted depend on the report from carriers by Rules for Reporting on 10 Telecommunications Business, theretofore voluntary report from carriers. All copyrights reserved by MIC

- Spread of mobile telephones
(80.51M [03.12] 90.19M [04.12])
- Spread of IP Telephony
(4.33M [03.12] 7.83M [04.12])
- Mainstreaming of directly connected telephones

Directly connected telephones:
Telephone services where other companies borrow subscriber lines only from NTT East and West, and correct them directly to the switch without going via the switches of NTT East and West.

(Reference: Fixed telephones of NTT East and West)
59.49M [04.03] 58.44M [05.03]



- Diversification of network format
- Continued decline in traffic entering via NTT East and West switch

Increase rising pressure on connection charges

Increased separation of actual network and network on LRIC model.

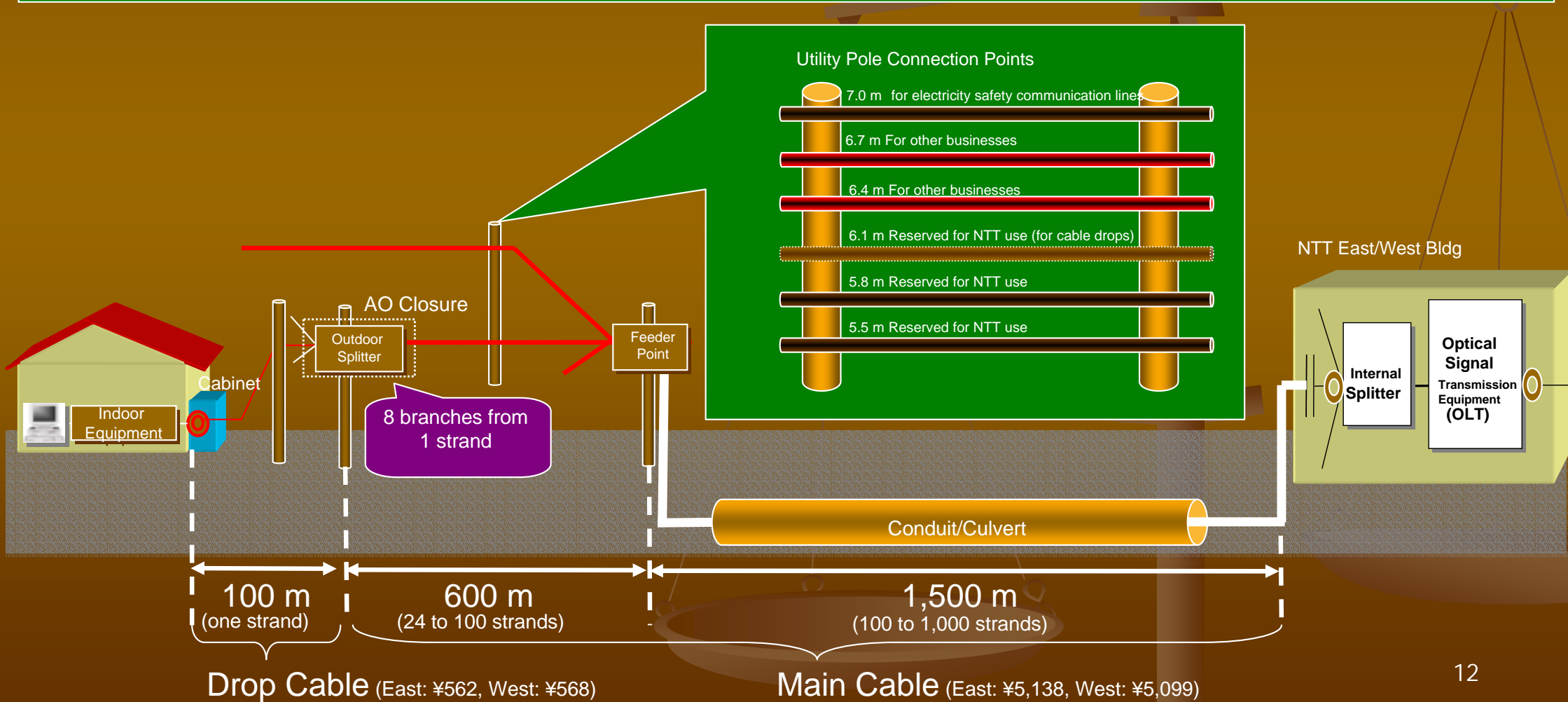
New model adopted from 1993-1995 (3 years) .

After that...? Continue with LRIC method? Or other methods?
(actual cost system, price capping etc.)

Investigate new connection charge calculation system by 1995.

Future Issues ~ Broadband ~

- 70% of a subscriber line is underground it is obviously difficult for competing businesses to lay their own optical fiber in these sections.
- There is room, however, for competing businesses to install their own optical fiber in the overhead sections of subscriber lines (particularly cable drops). Therefore, to promote infrastructure-based competition, it is necessary to establish conditions for independent installations in these overhead sections.



Promoting Infrastructure-based Competition on Drop Fiber

- In order to make it possible for competitive carriers to install their own drop fibres, we held a study group on the simplification of utility pole installation procedures.
- After 6 sessions, on 29 July 2005, pole holders (NTT & electric power companies) agreed to conduct an experimental test enable competitive carriers to install their own drop fibres.
- The agreement includes:
 - 1) NTT opens the 6.1 meter point which is now reserved for NTT use.
 - 2) Pole holders simplify the procedure by
 - a) checking facilities & how to install beforehand and,
 - b) making a contract, which is now necessary for every application, to only once in a quarter.
 - 3) Experimental test is conducted for 6 months, and the study group checks whether this new scheme works well every 2 months.
- After the experimental test, if this new scheme works well and competitors become able to install their own fibre drop freely, we will deregulate NTT's unbundling obligation on this part.