

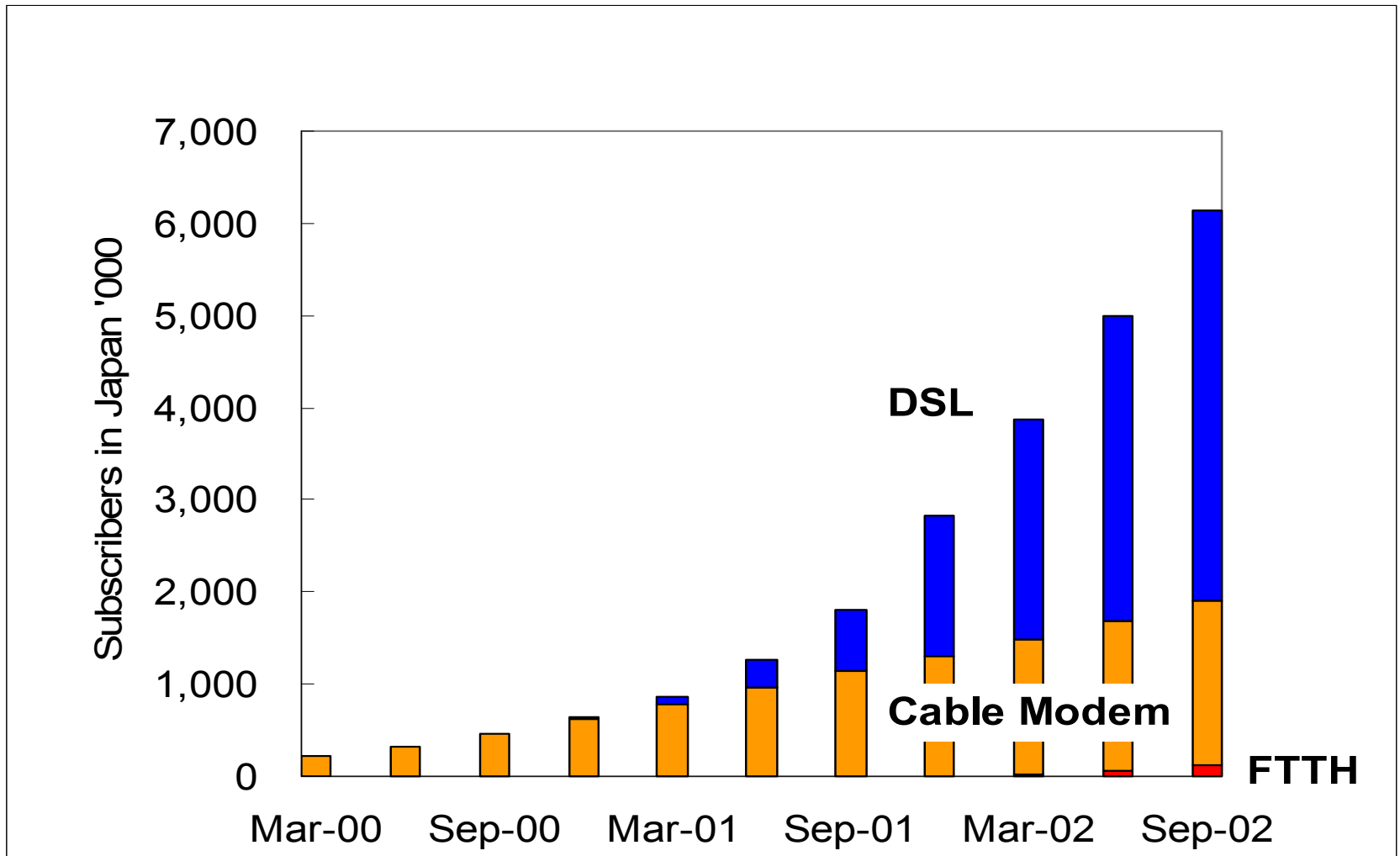
Broadband Networks in Japan

Winning Business Models

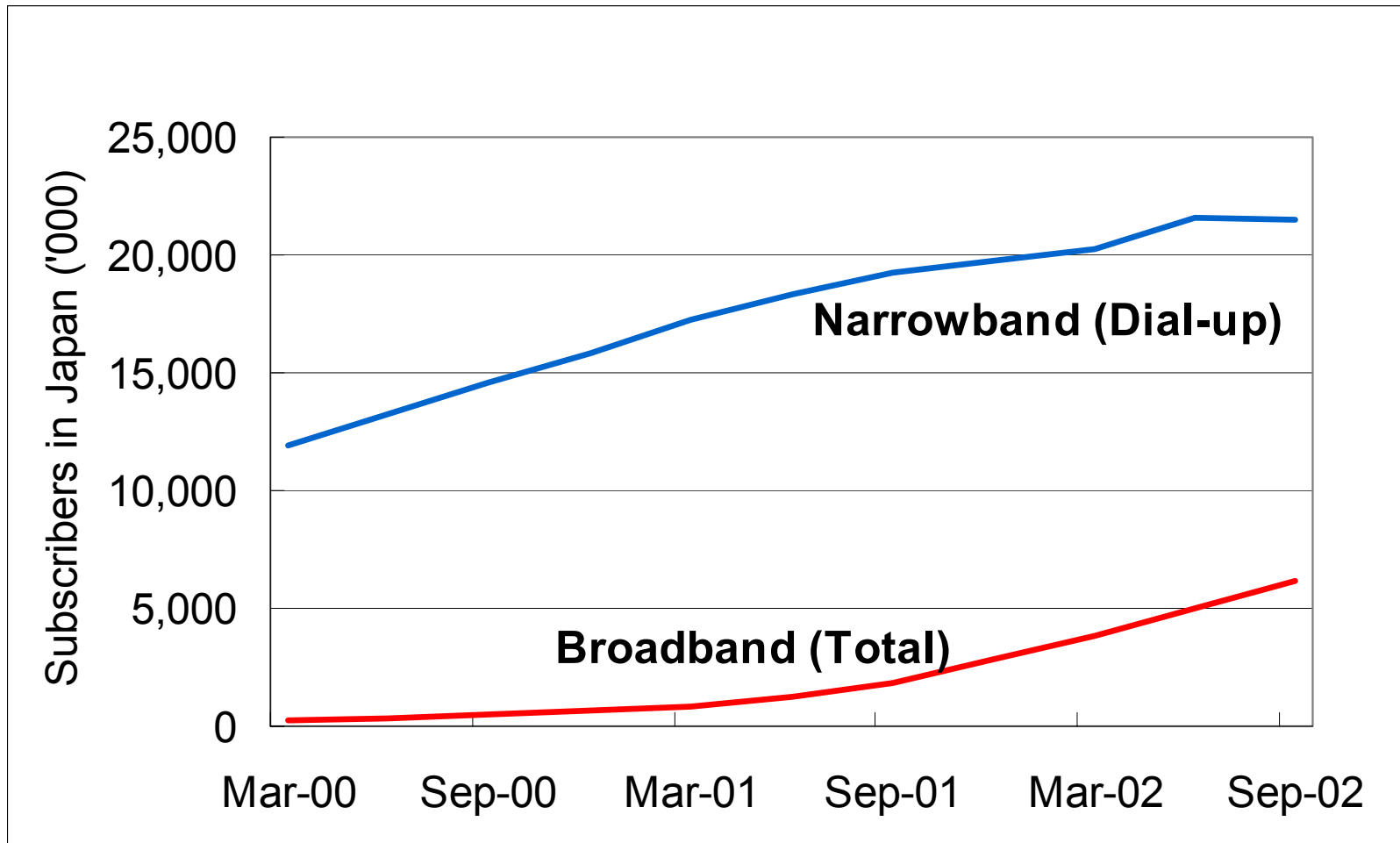
USA-Asia Technology Management Center
School of Engineering, Stanford University

December 5, 2002

Japan Broadband Networks Fast Growth

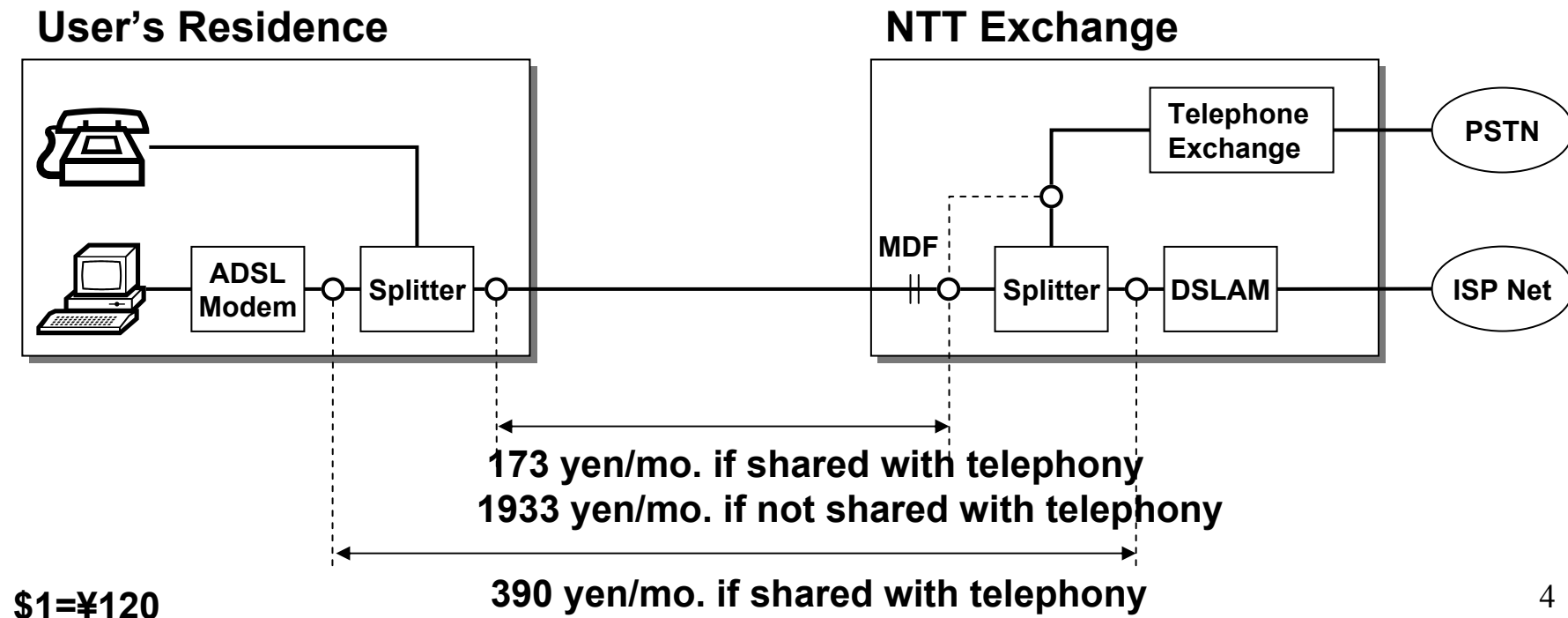


More Growth Expected



Why Sudden Growth?

Spurred by much faster growth of broadband in Korea, the Japanese regulator set low rates for DSL operators to rent the copper local loop from NTT (the incumbent)

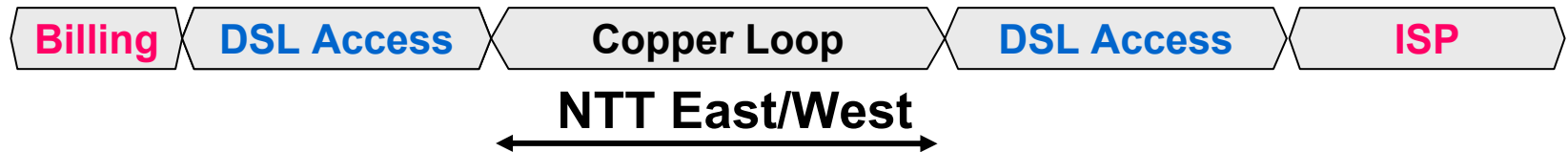
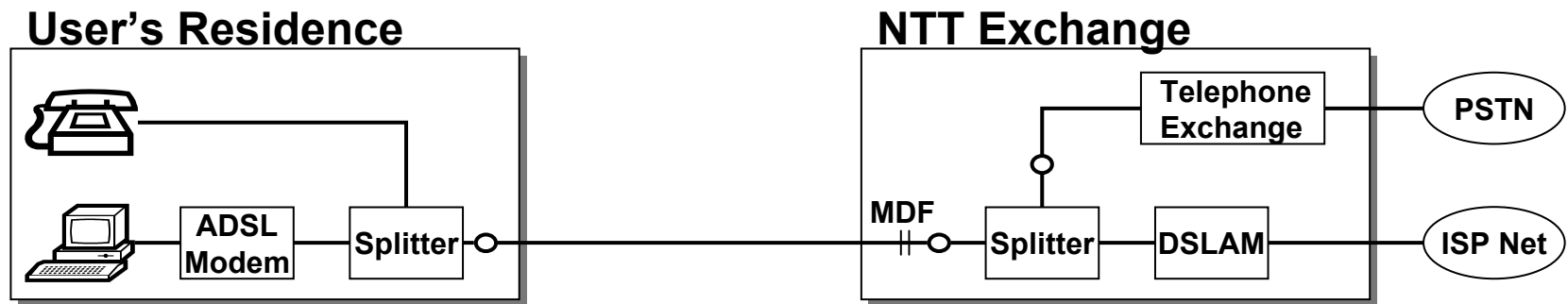


NTT's Fiber is Also Unbundled

Rates are relatively low, but higher than for the copper local loop:

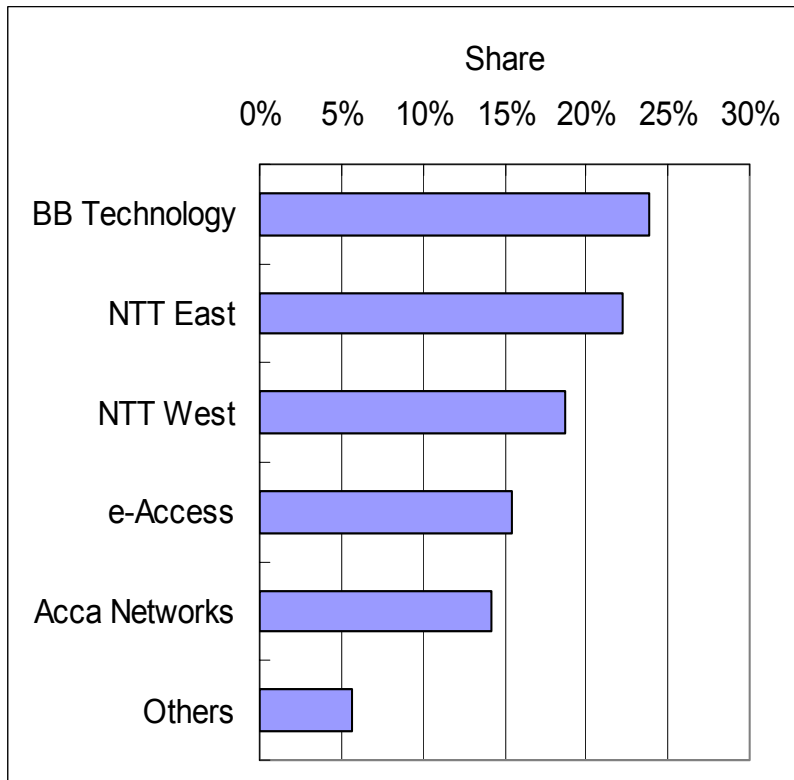
- Dedicated fiber: 5,217 yen per core per month
- Shared fiber:
 - Passive optical double-star (8x4x) network: 2,327 yen /subscriber/month
 - Media converter based network:
 - With 16:1 concentration: 1,254 yen/circuit/month
 - Without concentration: 1,531 yen/circuit/month

Two different DSL business models

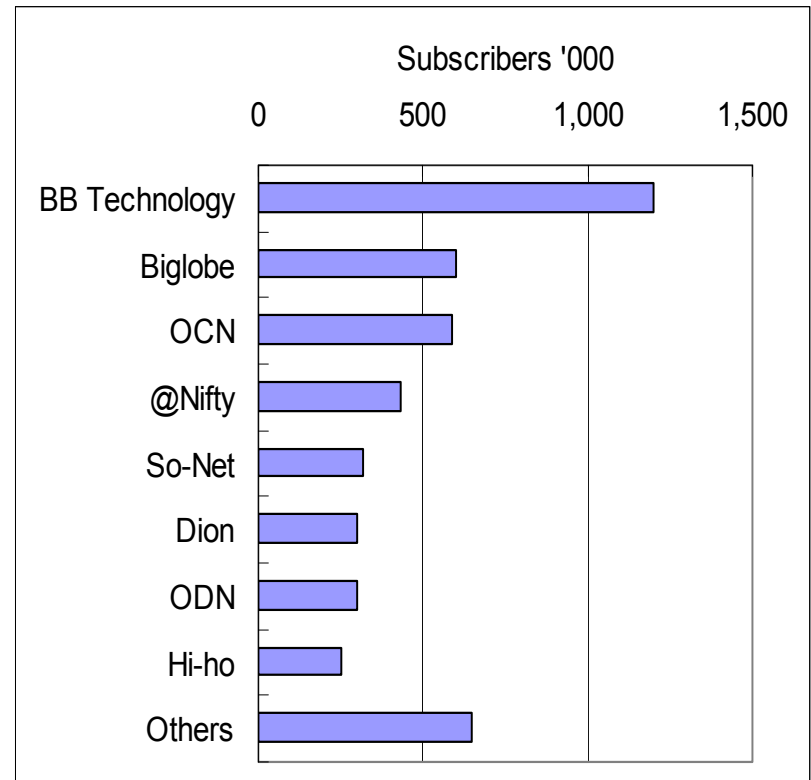


How is the DSL market share evolving?

DSL Operator Share



ISP Share



Case Study: BB Technology

BB Technology has changed the basis of competition three times:

- Offered disruptive pricing: 2400 yen/month when other operators were at 5,000 to 6,000 yen/month
- Led with increasing speed: 1.5 to 8 to 12 Mbps
- Added VoIP over DSL service
 - Maintain own phone number
 - Free calls on-net; 2.5 yen/minute to any phone in Japan or US mainland
- Next push is probably to content, business services
- Break-even point: 2 million subscribers, ARPU increasing from 3700 to 4000 yen/month

Competitive Response

ISPs offering broadband service have formed two groups to offer VoIP service, free calls within group

NEC	Biglobe
KDDI	DION
Japan Telecom	ODN
Matsushita	Hi-Ho

NTT Communications	OCN
Fujitsu	@Nifty
Sony	So-net

Probable Result

Rates for plain old telephony are approaching zero

Frantic move toward higher value added services:

- Business
 - Hosted IP PBX
 - Other SIP-enabled applications
- Consumer
 - Radical improvement of voice service
 - Streaming video
 - Integration with consumer electronics/home networks