
FTTR standard progress in CCSA TC6

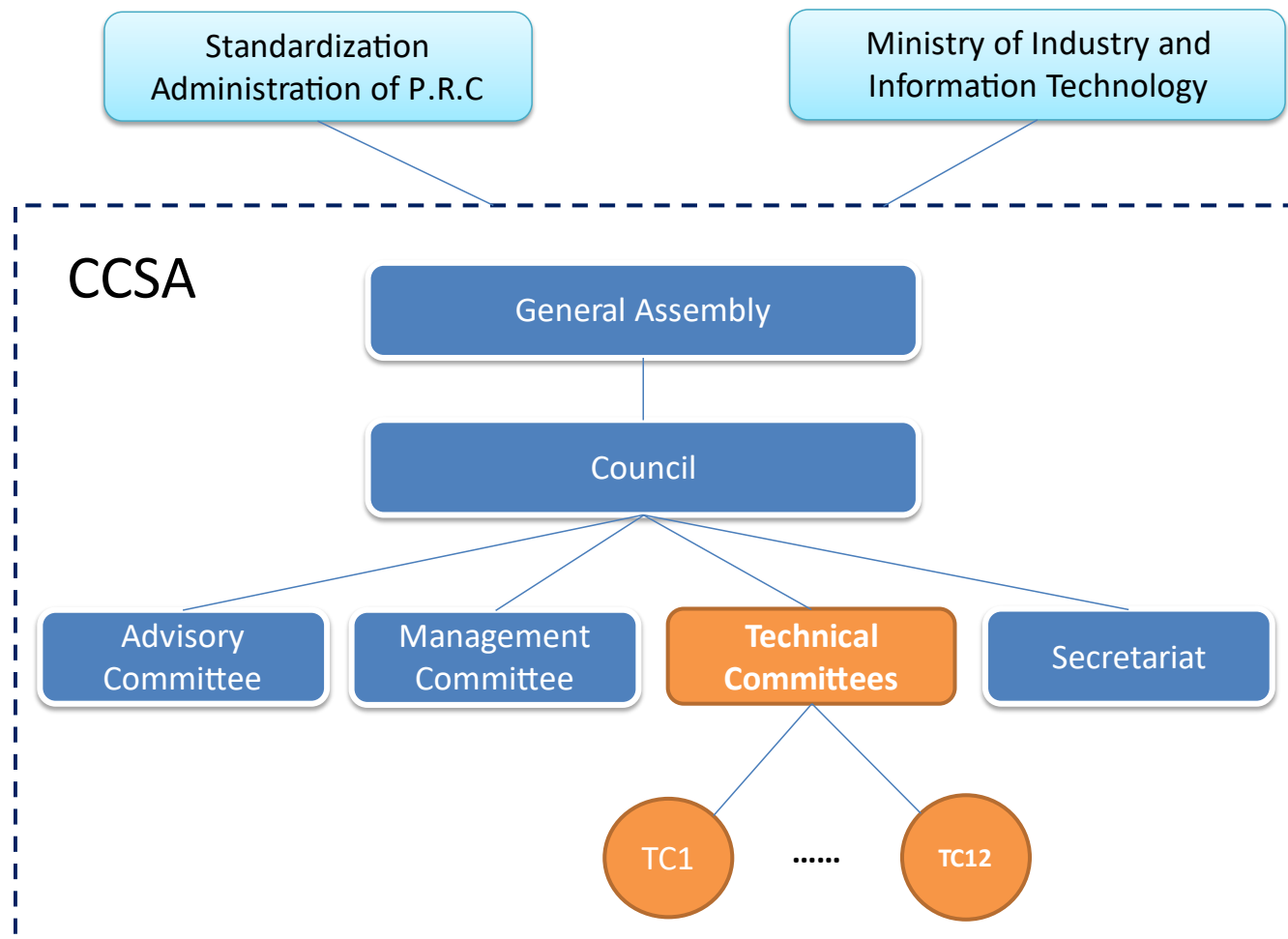
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CAICT

2022-06-28

China Communication Standards association (CCSA)

- CCSA is a non-profit organization for carrying out standardization activities in the field of Information and Communications Technology (ICT) across China.
- CCSA is organized in 2002 with the approval of Ministry of Information.
- CCSA has more than 700 members, including operators, vendors, universities and institutes etc.



Status of broadband development in China

FTTH/O dominates, what's next ?

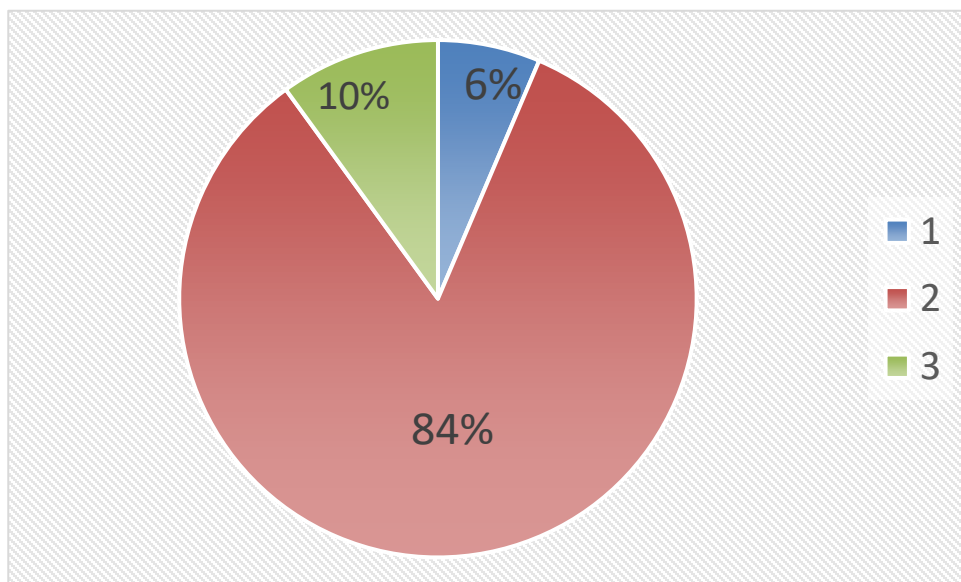
559 million
Broadband Subscribers

530 million
FTTH/O Subscribers

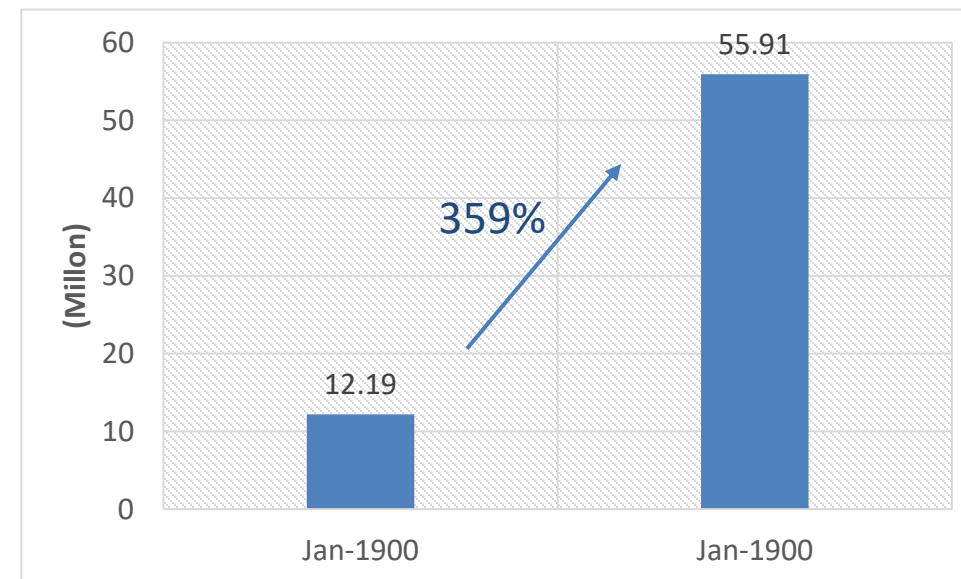
94.8%
Fiber access ratio

94%
> 100Mbps ratio

55.9 million
Service Plan > 1000M



Internet access service plans (May 2022)



Subscriber whose service plan > 1000M (May 2022)

(Data source: MIIT)

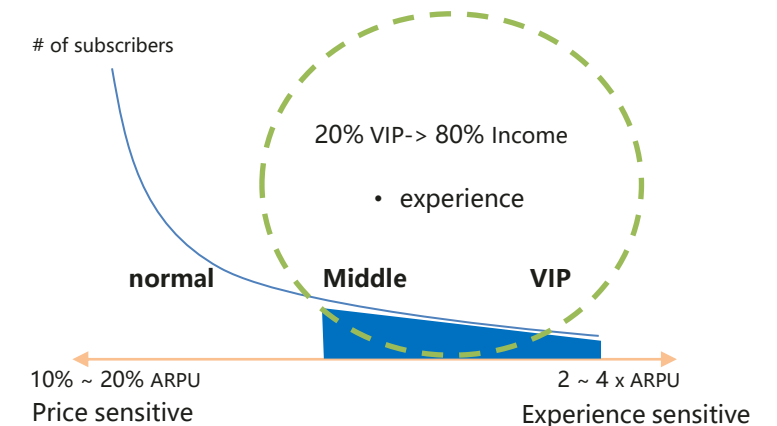
Government and operators

The government continues to encourage broadband to be developed at higher speeds

- **Ministry of Industry and Information Technology (MIIT)**
 - released “Dual-Gigabit network collaborative development action plan (2021-2023)” , which set [targets for Gigabit fiber network coverage](#).
- **Ministry of Housing and Urban-Rural Development (MoHURD)**
 - released “Guidance for Accelerating the development of digital families to improve the quality of living”, [which encourages fiber deployment in house](#) for fiber-to-the-room/desktop.

Operators have launched services focus on fiber based high-quality Wi-Fi

- FTTR helps operators develop the high-end user market



FTTR projects in CCSA – TC6/WG2

TC6: Transport and access network
- WG2: Access and home network

Response for standards development on system, equipment or management aspects of FTTR

- Standard projects

- Technical requirements for broadband customer networking based on public telecommunication network
- FTTR - Scenarios and requirements
- Technical requirements for broadband customer networking based on public telecommunication network
- FTTR - General requirements
- Technical requirements for broadband customer networking based on public telecommunication network
- FTTR - Physical layer
- Technical requirements for broadband customer networking based on public telecommunication network
- FTTR - Data link layer
- Technical requirements for broadband customer networking based on public telecommunication network
- FTTR - Management

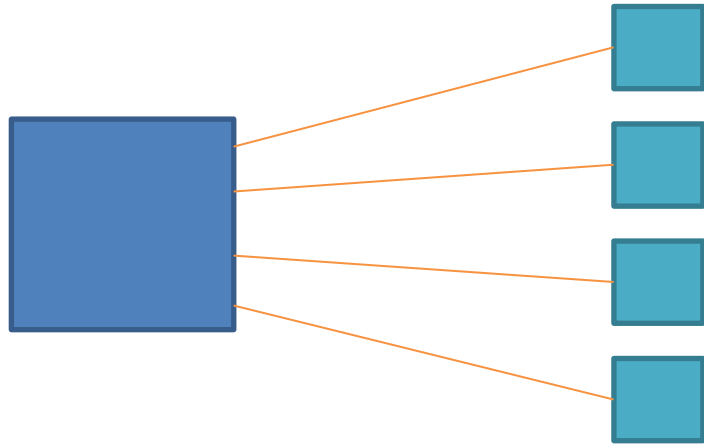
FTTR projects in CCSA – TC6/WG3


TC6: Transport and access network
- WG3: Optical fiber and cable

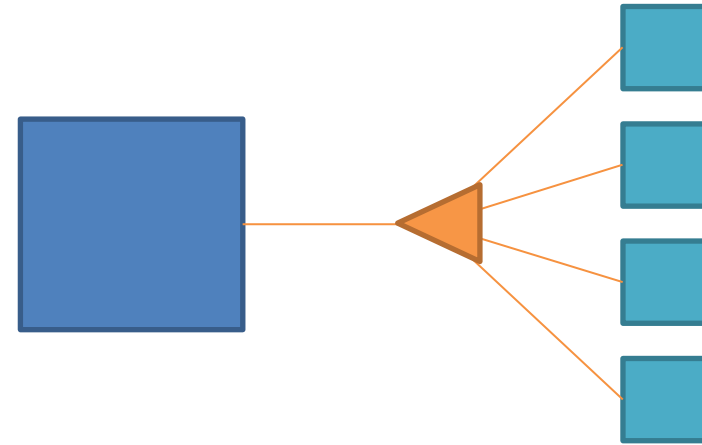
Response for standards development on passive aspects (e.g. cables, connectors) of FTTR


- Standard projects
 - Drop optical fibre cables for telecommunication - Part 4: Optical and electrical hybrid cables
 - Indoor optical fibre cables - Part 8: Optical and electrical hybrid cables
- TR projects
 - Research on Indoor ODN Routing and Technology of FTTR

Discussion in WG2: topology



- Multi-P2P 
 - Low complexity as small fan-out
 - Difficult cable wiring as big fan-out, especially for business scenario



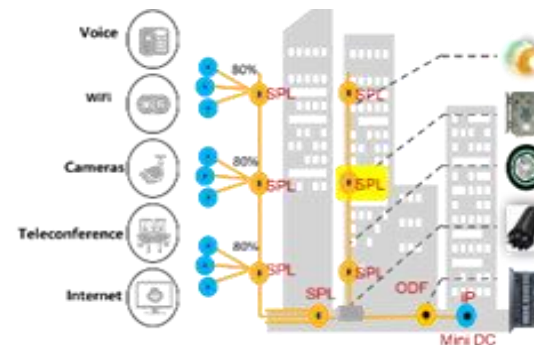
- P2MP 
 - Flexible fan-out
 - Easy wiring for both home and business scenario
 - Could inherit QoS and management mechanisms from PON MAC

Discussion in WG2: FTTR ODN deployment



For home

← FTTR →



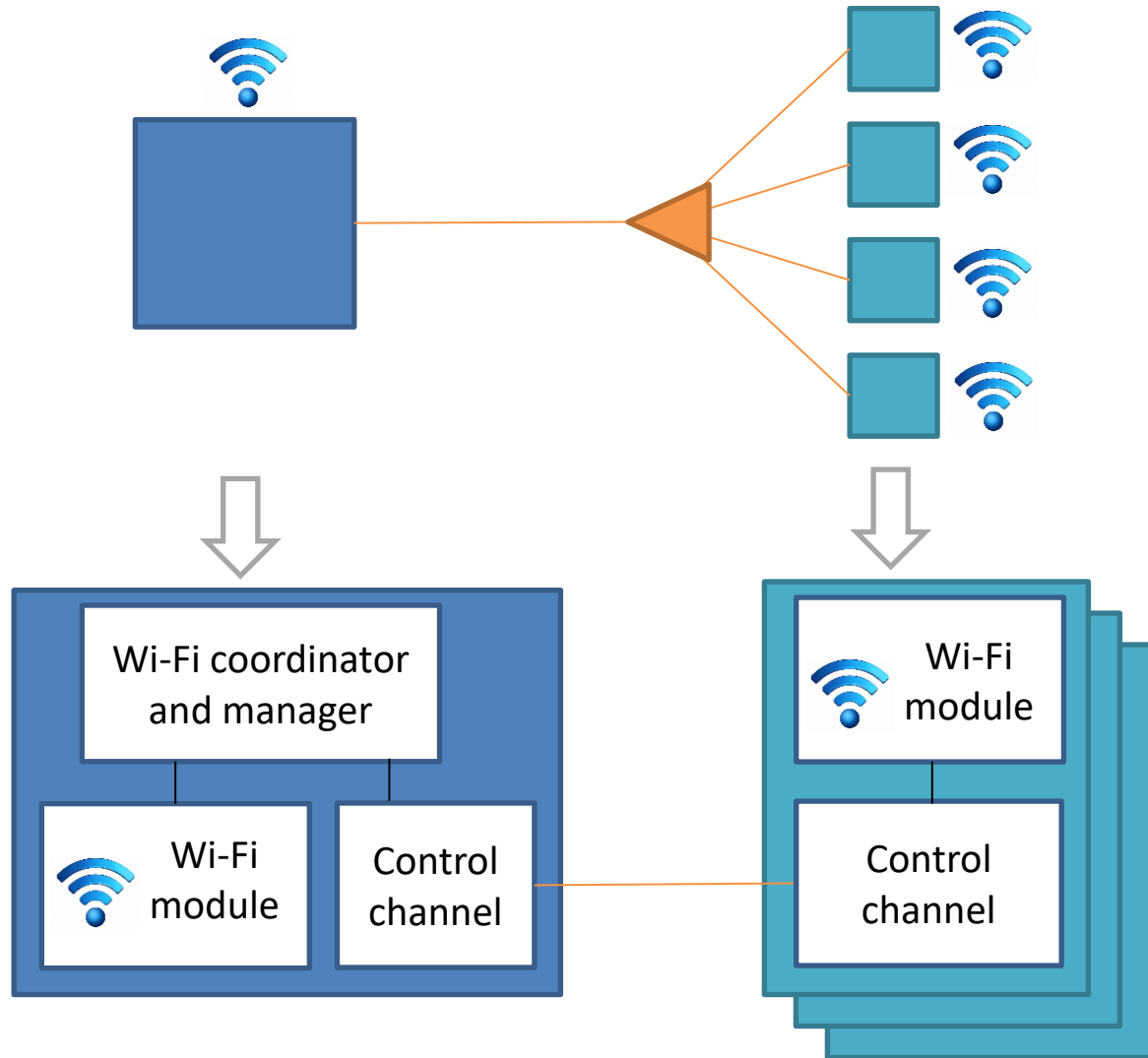
For small business

	Home	Business
ODN structure	Option 1: Cascade multiple unequal ratio splitters Option 2: 1 or 2 level of equal ratio splitter	
Total branches	16 max	32 max
Optical power loss min	0 dB	TBD
Optical power loss max	23~24 dB	28~30 dB

Discussion in WG2: rate and wavelength

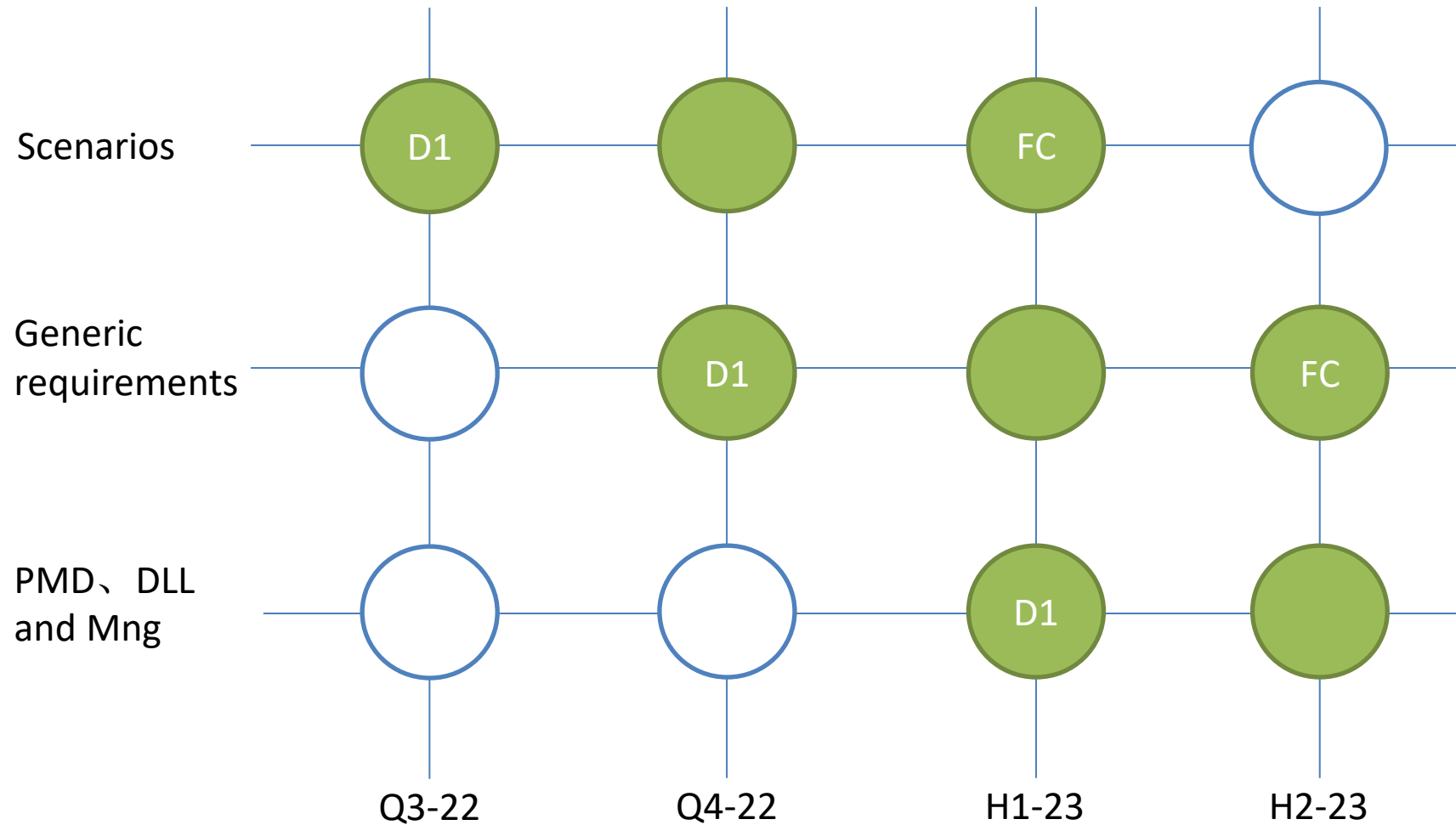
- Proposed fiber transmission rate options
 - Upstream: 1.25G, 2.5G, 5G, 10G
 - Downstream: 2.5G, 5G, 10G
 - Need further analysis the complexity and supply chain, to reduce the amount of options.
- Wavelength options
 - Upstream: 1310nm
 - Downstream: 1490nm or 1550nm (To be determined)
- Co-existence
 - Choice of rate and wavelength need to consider how the FTTR system evolving between different generations.
 - Will different rate devices co-exist in same fiber ?

Discussion in WG2: Wi-Fi management



- Agreed that centralized Wi-Fi management is a key feature for FTTR
- Detailed mechanism are being discussed:
 - Functional model
 - Wi-Fi management parameters
 - What channel should be used
 - Latency requirement on the control loop
 - Impact to hardware and chips

Time plan



D1: First draft
FC: For consent

Thanks