
10GEAPON extended PMD (IEEE Chicago September 2011)

Extended EPON Study Group

12th September 2011

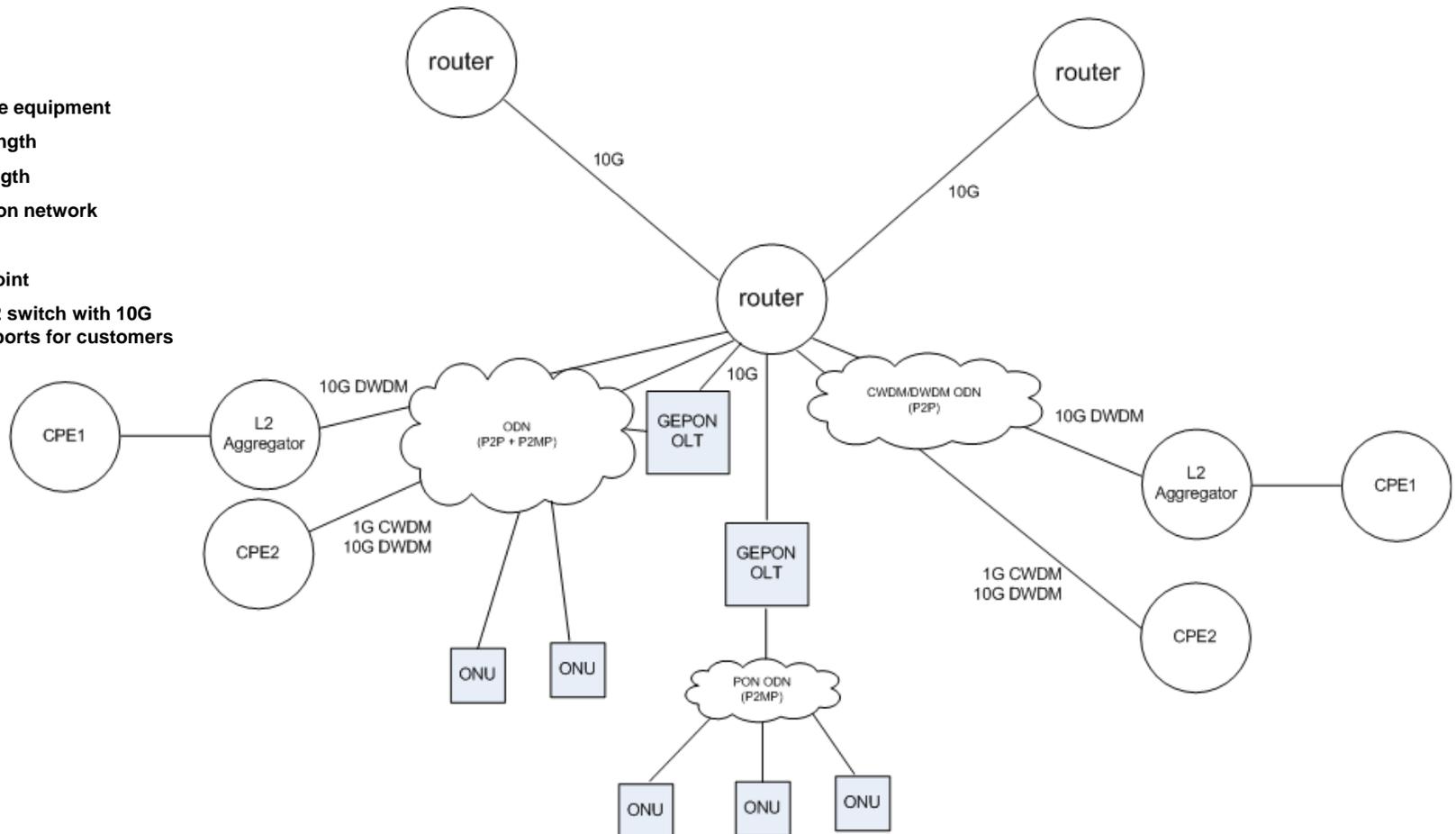
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Current & Future scenarios

- Especially interested in PR30 for commercial.
- Would like to use existing fibers on 10GEPON deployment since P2P deployments are going on right now.
- Having a 37dB power budget will really be useful in many scenarios for Comcast (especially in built up areas with existing P2P fiber deployments).
- Possible to limit dispersion penalty and extend power budget?
- For greenfield deployments, distances of more than 25km are not uncommon but 40km will cover most of the cases.

CPE = customer premise equipment
 CWDM = coarse wavelength
 DWDM = dense wavelength
 ODN = optical distribution network
 P2P = point to point
 P2MP = point to multi point
 L2 Aggregator = Layer 2 switch with 10G uplink and multiple 1G ports for customers



10GEPON deployment scenario – 10.3125 Gbps D/S U/S (PR30) C/DWDM commercial scenario

- Minimum Downstream Power budget = 5 + 28.5 = 33.5 dB
- Minimum Upstream Power budget = 4 + 28 = 32 dB
- Maximum Downstream Power budget = 9 + 28.5 = 37.5 dB
- Maximum Upstream Power budget = 9 + 28 = 37 dB

	Trunk + Drop (without C/DWDM link)		Trunk + Drop (with C/DWDM link 20km)	
	MIN* (km)	MAX* (km)	MIN*	MAX*
8 (10.7 dB)	34.77	46.14	14.77	26.14
16 (13.8 dB)	27.73	39.09	7.73	19.09
32 (18.5 dB)	17.05	28.41	-2.95	8.41
64 (21.8 dB)	9.55	20.91	-10.45	0.91
128 (25 dB)	2.27	13.64	-17.73	-6.36

* Based on 1270 nm upstream (0.44 dB/km)
 Without C/DWDM link = no CWDM link fiber but has two CWDM filters + 2 DWDM filters,
 With CWDM link = with CWDM link and two CWDM filters + 2 DWDM filters.
 CWDM and DWDM upgrade port assumed to have 1.5dB insertion loss each @ 1270nm
 Also assuming DWDM filters will be at the CWDM filters location.
 Does not include splices, connectors

