

Economic Analysis of EPoC

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Current Landscape

- DOCSIS[®] used for 10+ years and HFC for 50+ years
- DOCSIS capacity usage has steadily increased:
 - Apps evolve from email/text to files to video
 - Convenience and new apps bring uses into everyday life
 - Proliferation of personal, iconic devices
- DOCSIS has nicely scaled with usage (e.g., DOCSIS 3.0)
 - And scaling of underlying costs has been achieved
- Very hard to confidently predict future capacity growth
 - Will speed tier increases see a reduced rate of growth?
 - “Saturation” and equilibrium point?
 - Emergence of M2M?
- Most MSOs considering EPON, and EPoC, for biz svcs

Analysis Inputs and Assumptions

- Modeled several EPoC use cases
- Key inputs and assumptions:
 - DOCSIS costs continue trend on scale vs. capacity
 - Various consumption curves and audience size
 - Consumption continues increase per sub
 - Speed tier increases roughly on-par with history
 - Additional improvements to DOCSIS likely:
 - Improved FEC, higher modulations, achieving near-parity with best-of-breed solutions on a b/s/Hz basis.
 - OLT costs on a per-Gig port also scale downward over time and demand

Analysis Results

- Equipment costs are not a surprise:
 - With current environment, DOCSIS & HFC at-par
 - CMTS \approx OLT+DPoE, CM \approx CNU and OCU \approx line extender
 - NOTE: DPoE increases cost of EPON for cable
- With some growth models, EPoC's costs can become attractive
 - EPoC cost curve tapers nicely – but questions remain on bandwidth eng'g needs for resi base
- DOCSIS cost basis per sub can stay relatively level despite consumption increasing
- EPoC is a very compelling alternative to EPON for business services; leverages coax plant

Conclusions and Issues

- EPoC costs understood – par with DOCSIS & HFC
- Spectral Fit: balance spectrum to ‘fit’ EPoC
 - Analog reclaim and video compression for SD/HD
 - HSD growth (resi and biz) and IP video over DOCSIS
- Legacy base over time
 - Long tail of legacy STBs and corresponding services
 - Out-of-band decisions for split adjustment
- EPoC is a promising technology to deliver EPON-like services over HFC for commercial services
- Time will show spectral fit and legacy base in conjunction with any EPoC deployment.