Society of Cable Telecommunications Engineers

30TH ANNIVERSARY

SCTE CABLE-TEC EXPO '13

OCTOBER 21-24 / ATLANTA, GA

BEYOND CCAP V2
N²GAN

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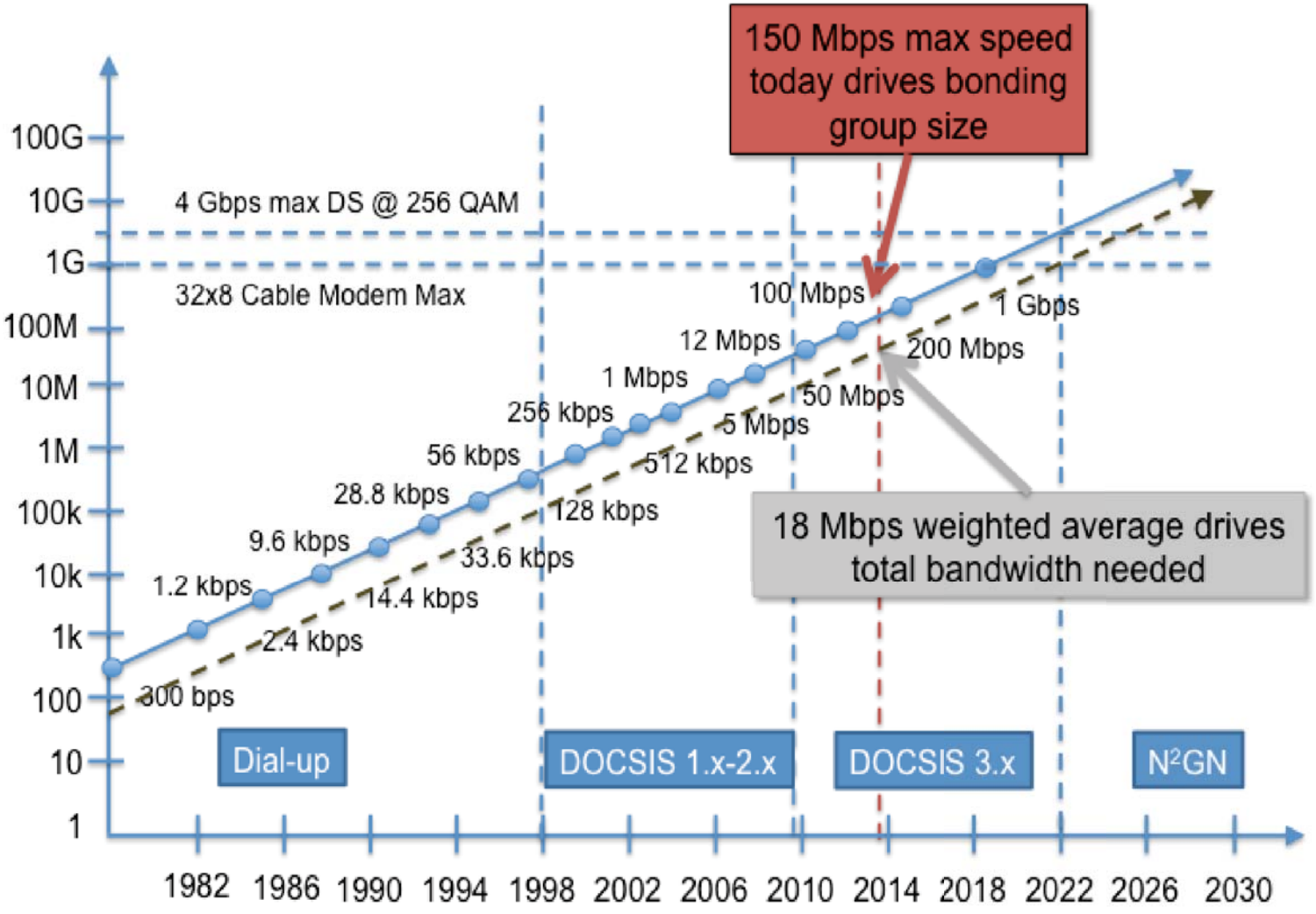
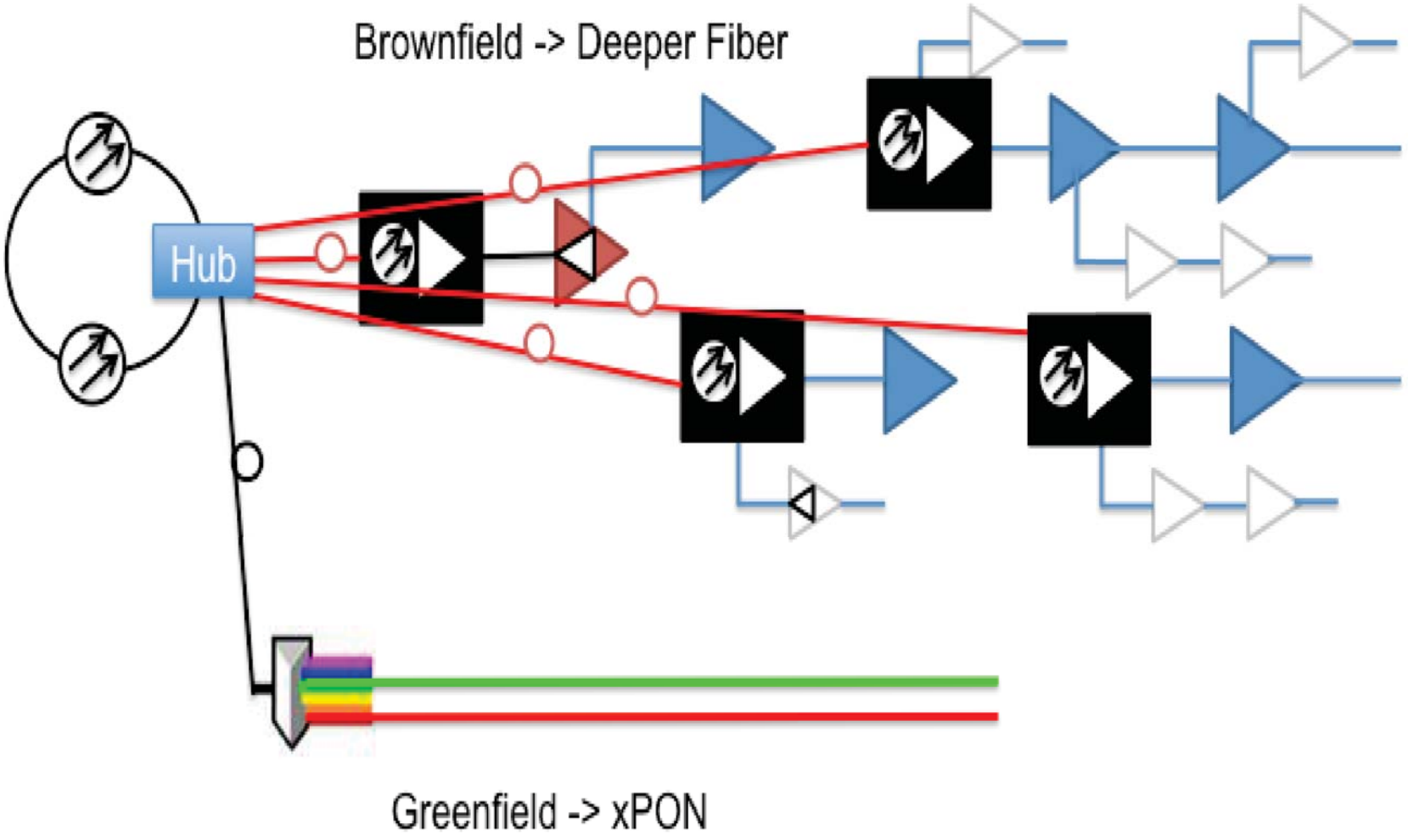
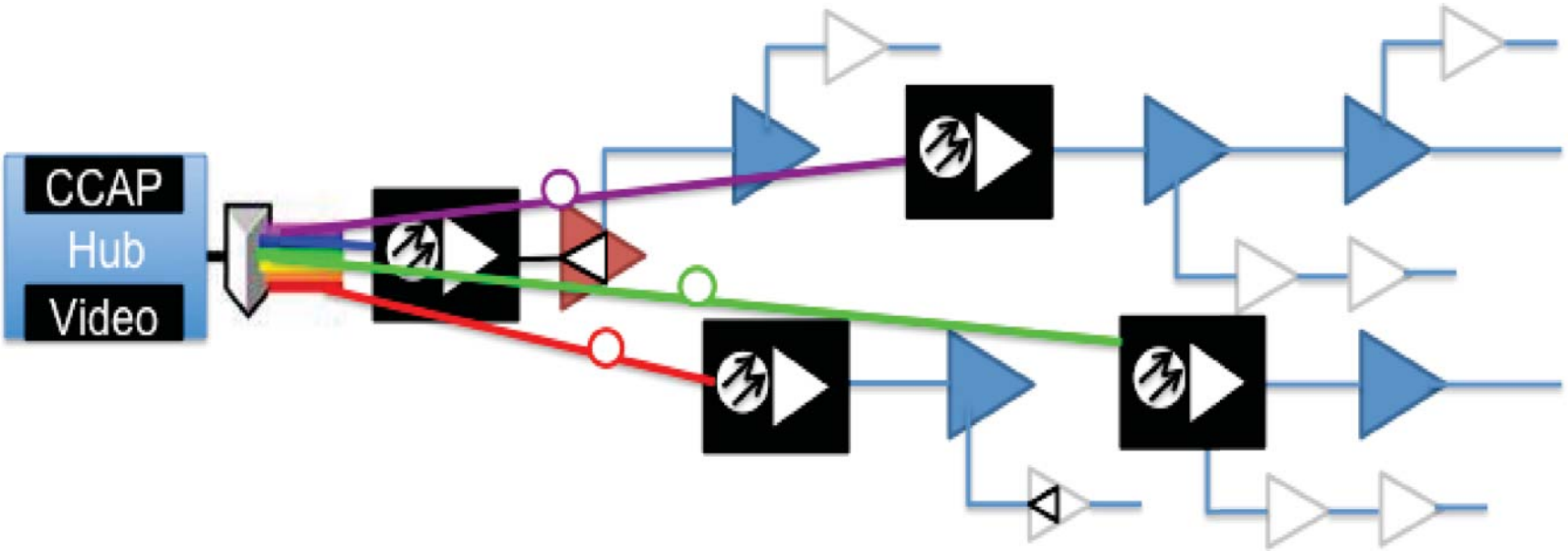
ERAS OF CONSUMER SPEEDS



TYPICAL HFC DEPLOYMENTS



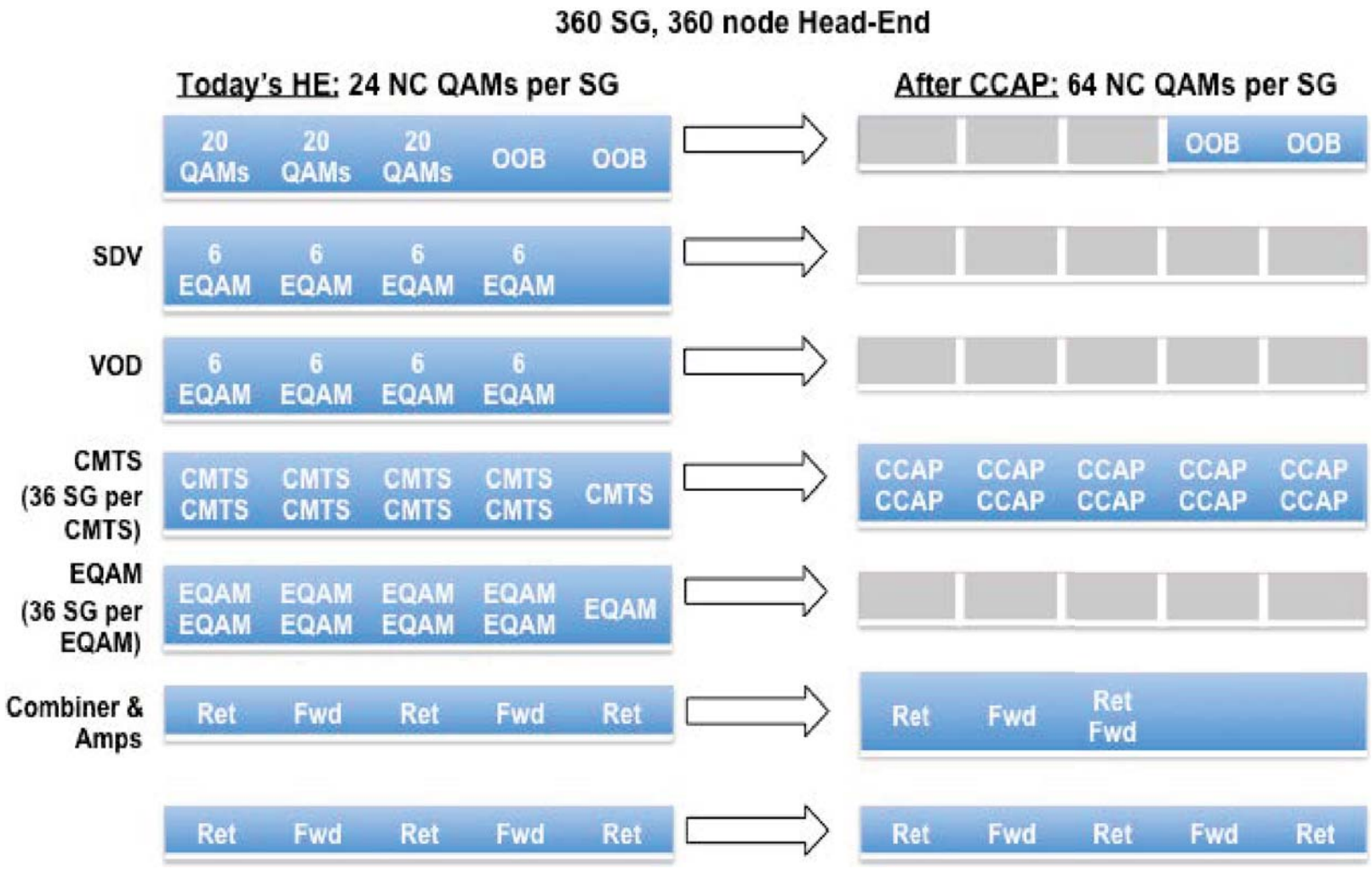
BAU CCAP DEPLOYMENTS



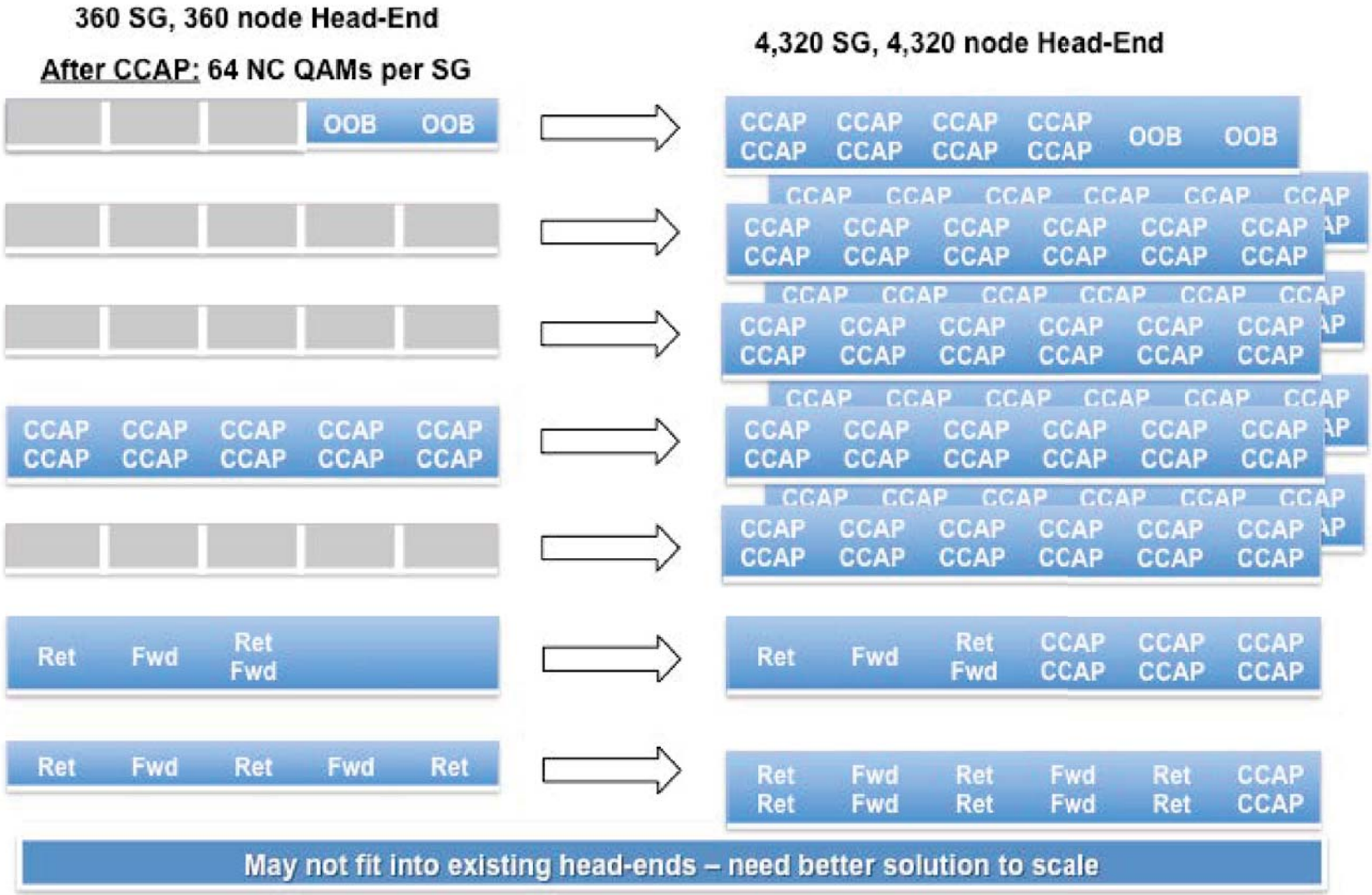
Good news
- Less equipment in the Head-End
- Multi-service single box
- Backward compatible
- Easy migration
- Simplify Head-End

Bad news
- Complex to build
- Continued node splits needed
- Timeframe requires transitional approach
- Head-End requirements will be difficult scaling at N+0 and possibly N+1

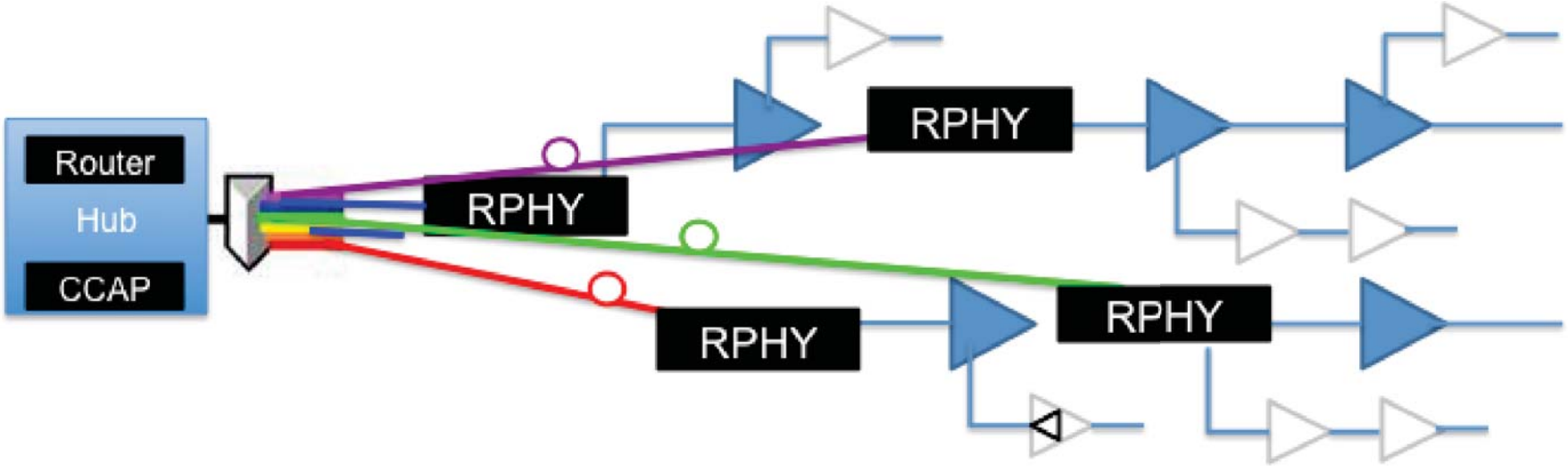
CCAP HEADEND GAINS



CCAP N+6 TO N+0


360 SG, 360 node Head-End
After CCAP: 64 NC QAMs per SG
4,320 SG, 4,320 node Head-End
OOB OOB
CCAP CCAP CCAP CCAP CCAP
CCAP CCAP CCAP CCAP CCAP
Ret Fwd Ret Fwd
Ret Fwd Ret Fwd Ret
OOB OOB
CCAP CCAP CCAP CCAP CCAP CCAP
Ret Fwd Ret Fwd Ret CCAP
May not fit into existing head-ends – need better solution to scale

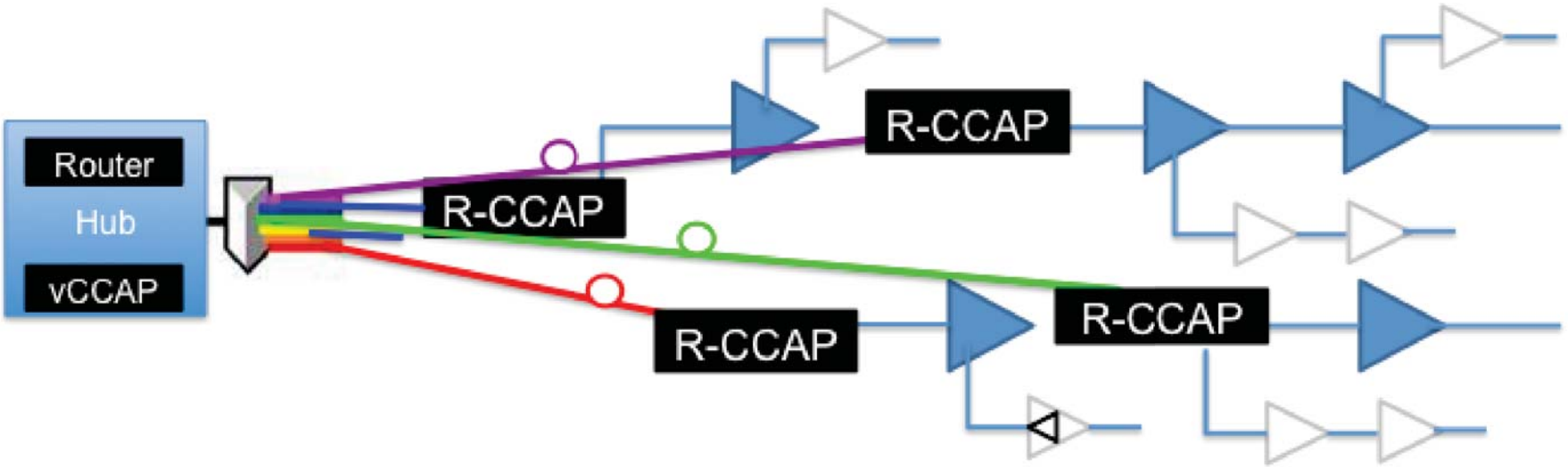
REMOTE PHY



Good news
- Line card upgrade only from I-CCAP
- Uses ethernet to reach remote unit
- Backward compatible
- Simplifies migration and head-end
- Higher HFC SNR
- Uses DEPI and UEPI

Bad news
- Requires line card replacement
- Technology limited by chip size today
- Thermal concerns for field deployment
- Have to deal with legacy STB OOB
- Timeframe requires transitional approach
- May not solve head-end space/power issues

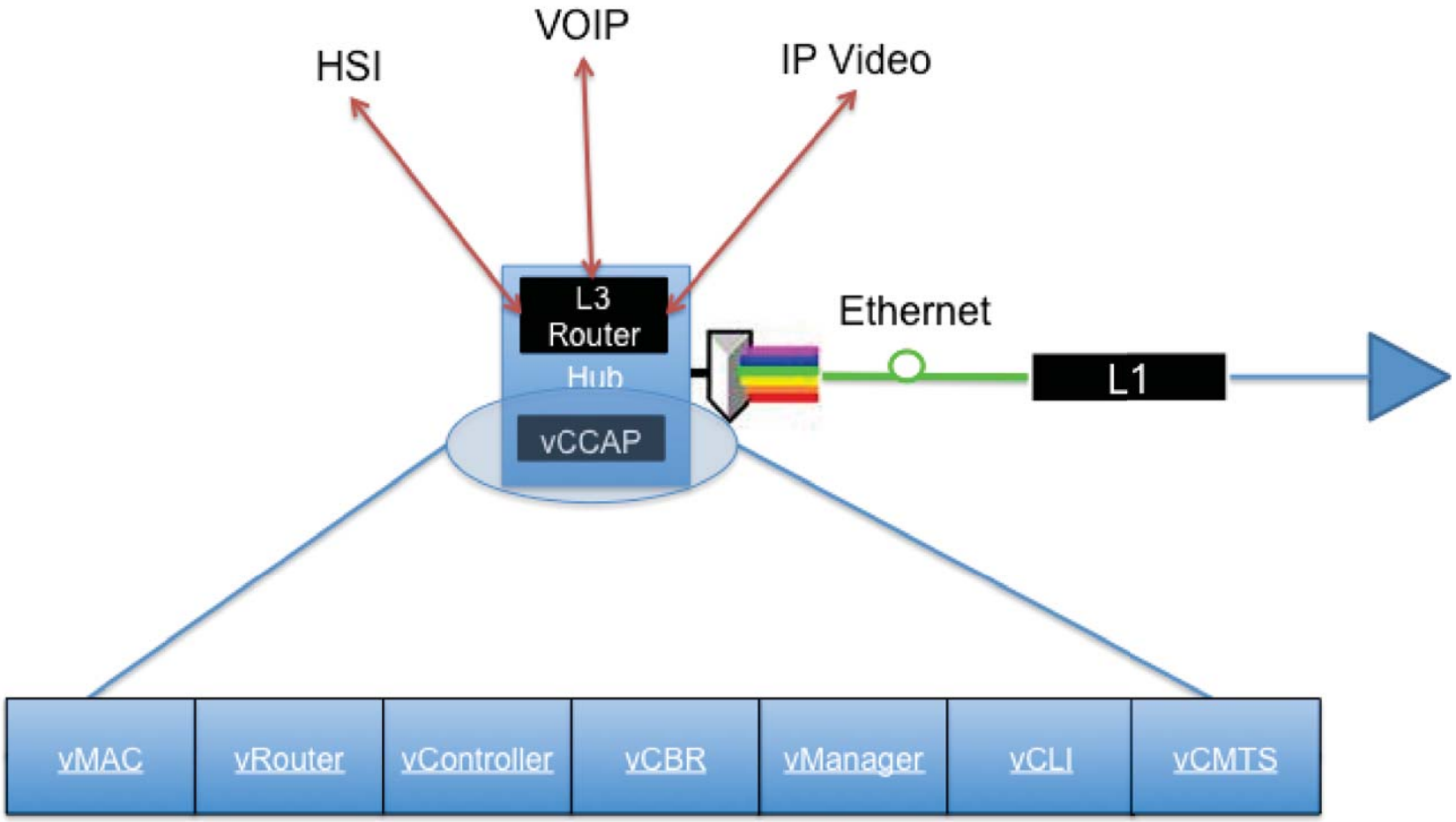
REMOTE CCAP



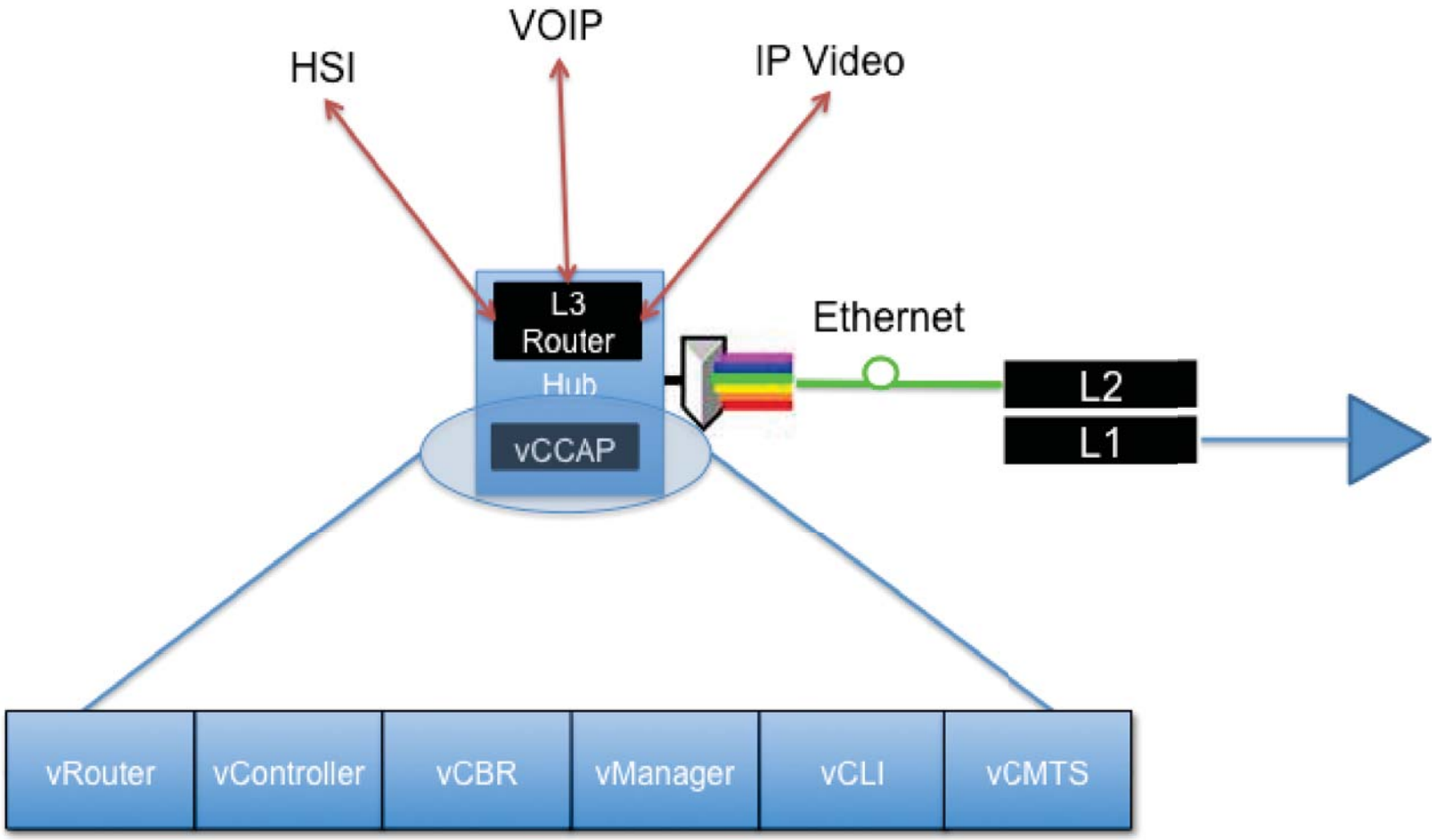
Good news
- Less equipment in the Head-End
- Uses ethernet to reach remote unit
- Backward compatible
- Moderately complex migration
- Higher HFC SNR
- Easy to scale

Bad news
- Technology limited by chip size today
- Thermal concerns for field deployment
- Have to deal with legacy STB OOB
- Timeframe requires transitional approach
- Need to develop new interfaces with SDN

VCCAP REMOTE PHY



VCCAP REMOTE CCAP



CONCLUSIONS

- HFC has a long useful life ahead
- Moving the PHY closer to the customer will improve head-room and allow higher speeds
- Pushing the MAC into the plant simplifies the head-end
- Virtualizing cognitive functions into the cloud allows greater scalability
- Build for today, plan for the future

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