



Solution Note #100

Issue:

*Cable Companies
are transitioning
from Analog+Digital services
to an all-Digital service*

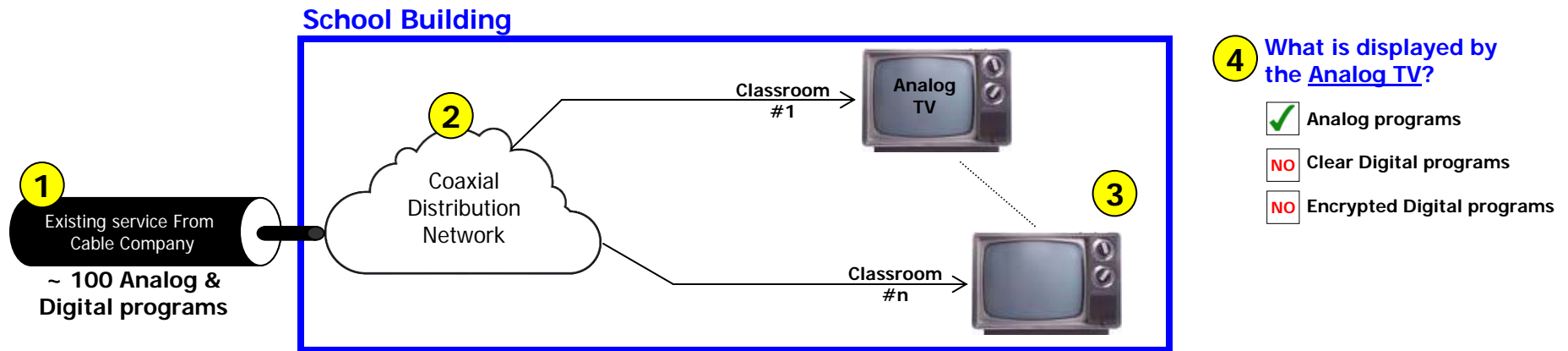
Market:

*Schools (K-12)
Universities*





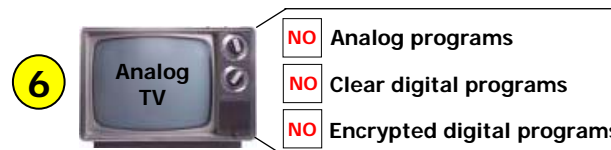
Problem Statement



- 1. Today** your local Cable Company's service includes both Analog & Digital programs. Typically, 60% of Digital programs is encrypted, and 40% is clear (unencrypted).
- School's existing cable plant, typically designed as a 350- to 750-MHz system.
- School's existing Analog TV sets.
- Existing Analog TV sets can only display the analog programs. No digital programs can be displayed.

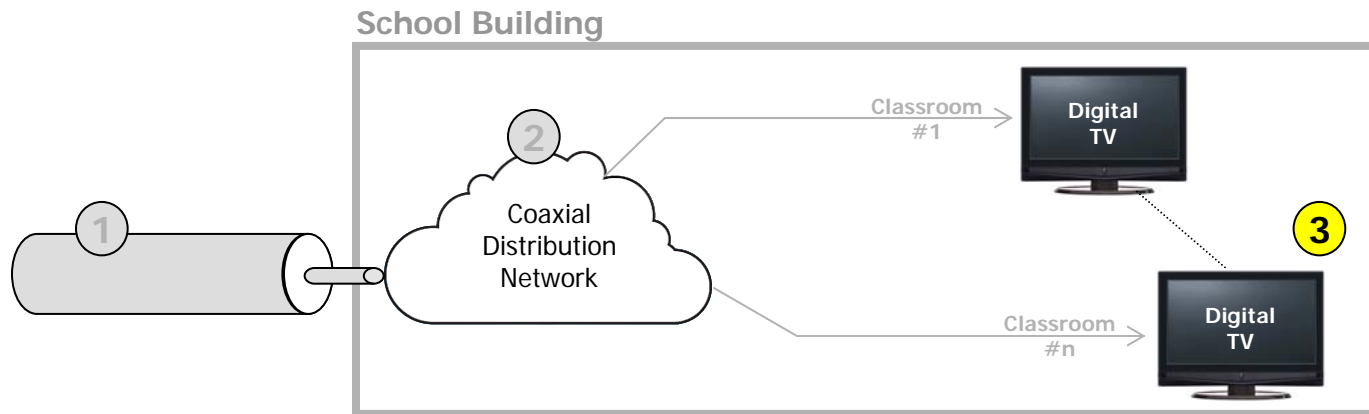
Problem Statement

- 5. By 2012** the local Cable Company will switch to an all-Digital service. ~~Analog & Digital programs~~ **ONLY!**
- An all-Digital service will render the Analog TVs obsolete. No programs will be displayed on the Analog TV.





Solution #1: Replacing the Analog TV Sets



4 What is displayed by the Digital TV?

- Analog programs
- Clear Digital programs
- Encrypted Digital programs

3. Analog TV sets are replaced with Digital models.

4. Both analog and clear digital programs can be displayed. Encrypted Digital programs cannot be displayed.

Advantages

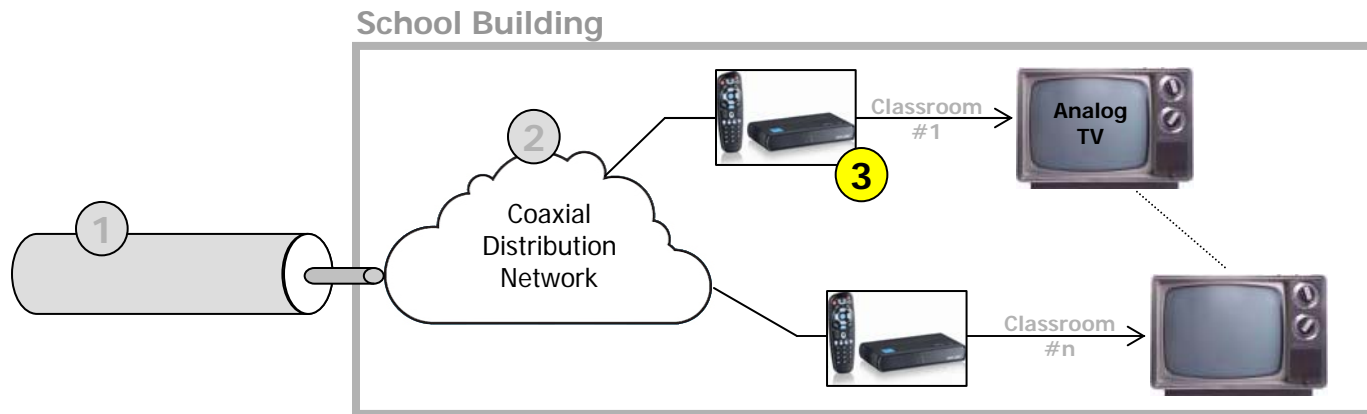
- Compatible with today's mixed Analog+Digital service, and future-proof for tomorrow's all-digital service.

Disadvantages

- Expensive: material and labor cost to replace Analog with Digital TV sets is high.
- Large up-front investment: requires a large one-time & up-front capital investment.
- May require upgrade of distribution network to support higher frequency ranges that digital programs are typically assigned to.
- May require expensive channel-elimination filters if programs other than those provided by the cable company (school-generated electronic bulletin board, sports, shows, ...) are to be added to the channel line-up.



Solution #2: Adding Digital-to-Analog Converter Boxes



4 What is displayed by the Analog TV?

- Analog programs
- Clear Digital programs
- Encrypted Digital programs

3. Digital-to-Analog converter boxes are installed next to the Analog TV sets – one converter for each TV.

4. Both analog and clear digital programs can be displayed. Encrypted Digital programs cannot be displayed.

Advantages

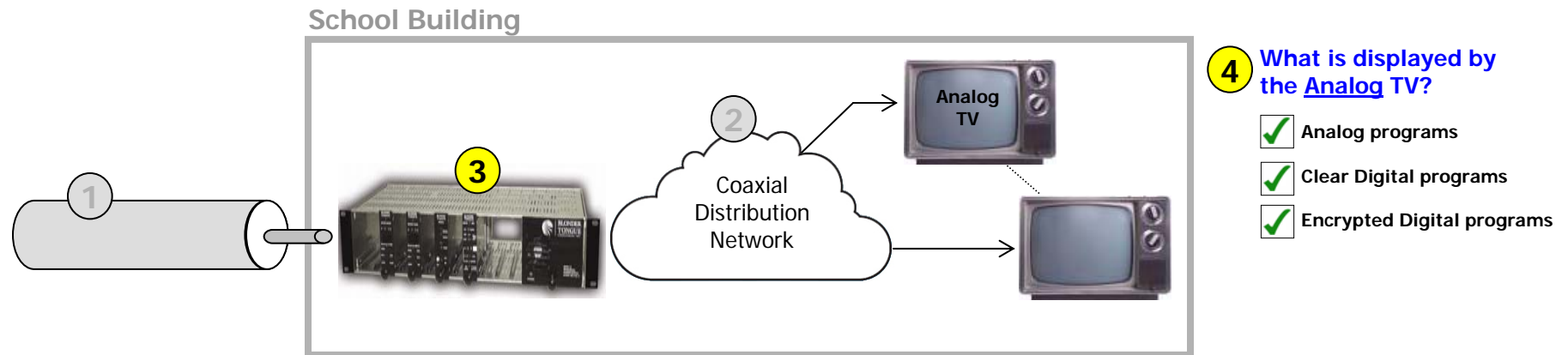
- Allows replacing of Analog TV sets with Digital models without service interruption as funding becomes available.
- Compatible with today's mixed Analog+Digital service, and with tomorrow's all-digital service.
- Relatively inexpensive - ~\$100 per converter box.

Disadvantages

- Requires wiring/installation of the converter box in each classroom. Converter boxes are easily compromised and/or stolen.
- Converter boxes are built for consumer applications and are not as reliable as commercial-grade products.
- Operating the converter box requires a remote control - Adds another remote control to the classroom.
- May adversely impact the Closed Captioning feature, potentially impacting ADA (Americans with Disability Act) compliance.
- May require upgrade of distribution network to support higher frequency ranges that digital programs are typically assigned to.
- May require expensive channel-elimination filters if programs other than those provided by the cable company (school-generated electronic bulletin board, sports, plays, ...) are to be added to the channel line-up.



Solution #3: Digital-to-Analog Headend



3. Digital-to-Analog headend – one headend for each building. See next slide for details.

4. Analog, clear digital programs, and selected encrypted digital programs can be displayed.

Advantages

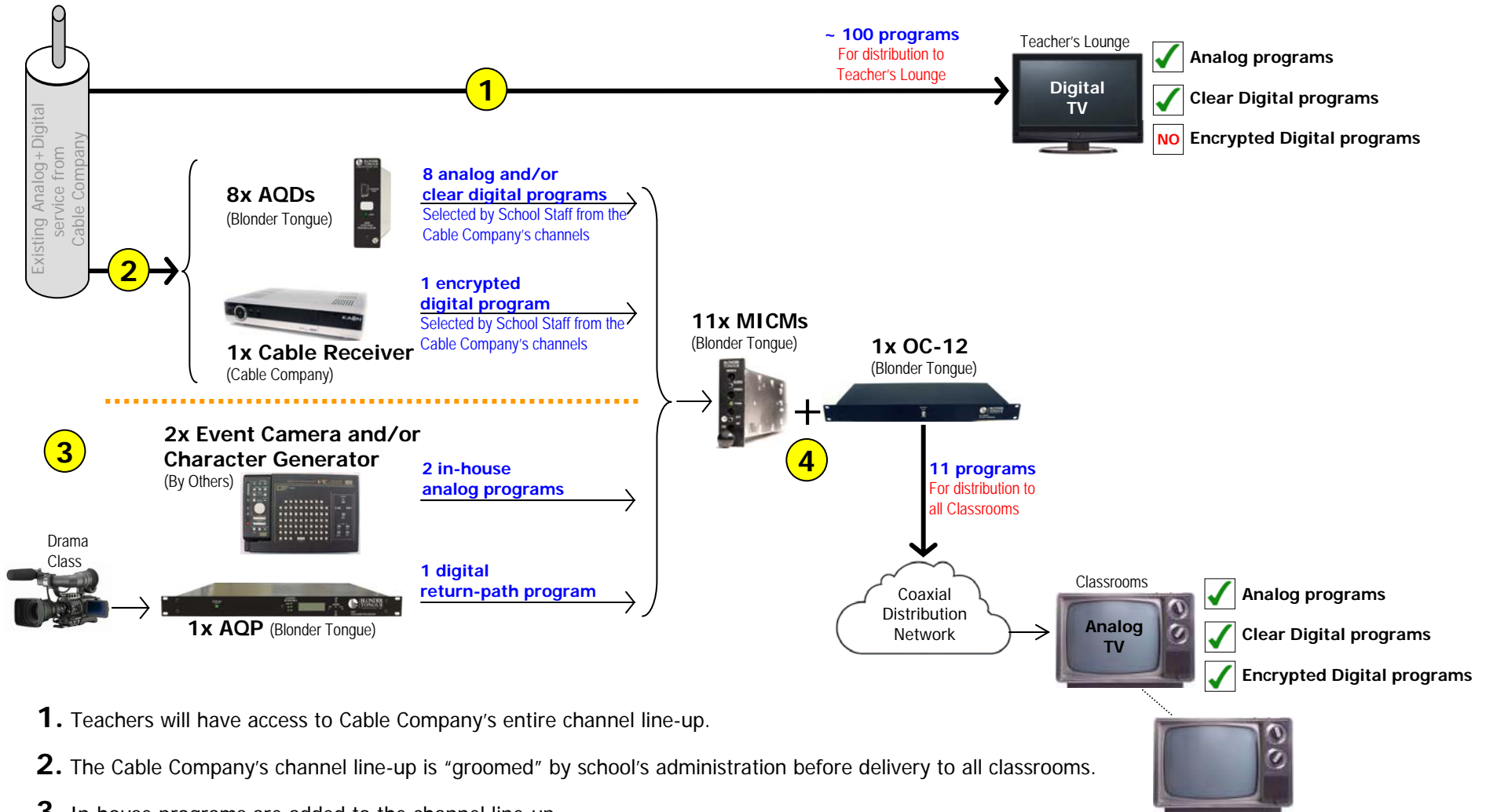
- School administration can select/assign channel line-up and programming.
- Allows replacing of Analog TV sets with Digital models without service interruption as funding becomes available.
- Secure – equipment is installed in a one location (communication closet).
- In-house programs (school-generated electronic bulletin board, sports, plays, ...) can easily be added to the channels received from the Cable company.

Disadvantages

- Requires ~ 6 square feet of floor space in a telecommunication room/closet.
- May be more expensive than solution #2 (adding Digital-to-Analog Converter Box).
- May be cost prohibitive for very small facilities (10 classrooms or less).



Solution #3: Typical Implementation



1. Teachers will have access to Cable Company's entire channel line-up.
2. The Cable Company's channel line-up is "groomed" by school's administration before delivery to all classrooms.
3. In-house programs are added to the channel line-up.
4. Selected Cable Company's programs and in-house programs are combined and delivered to all classrooms.



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