

# DTV Multicasting

*It's more than what meets the eye*

WEBE SMPTE Conference  
October 2004



# *Agenda*

- File Ingest Project
- Next Generation Interconnection System (NGIS)
- DTV Multicasting

Goal: Create an end to end file based program management environment

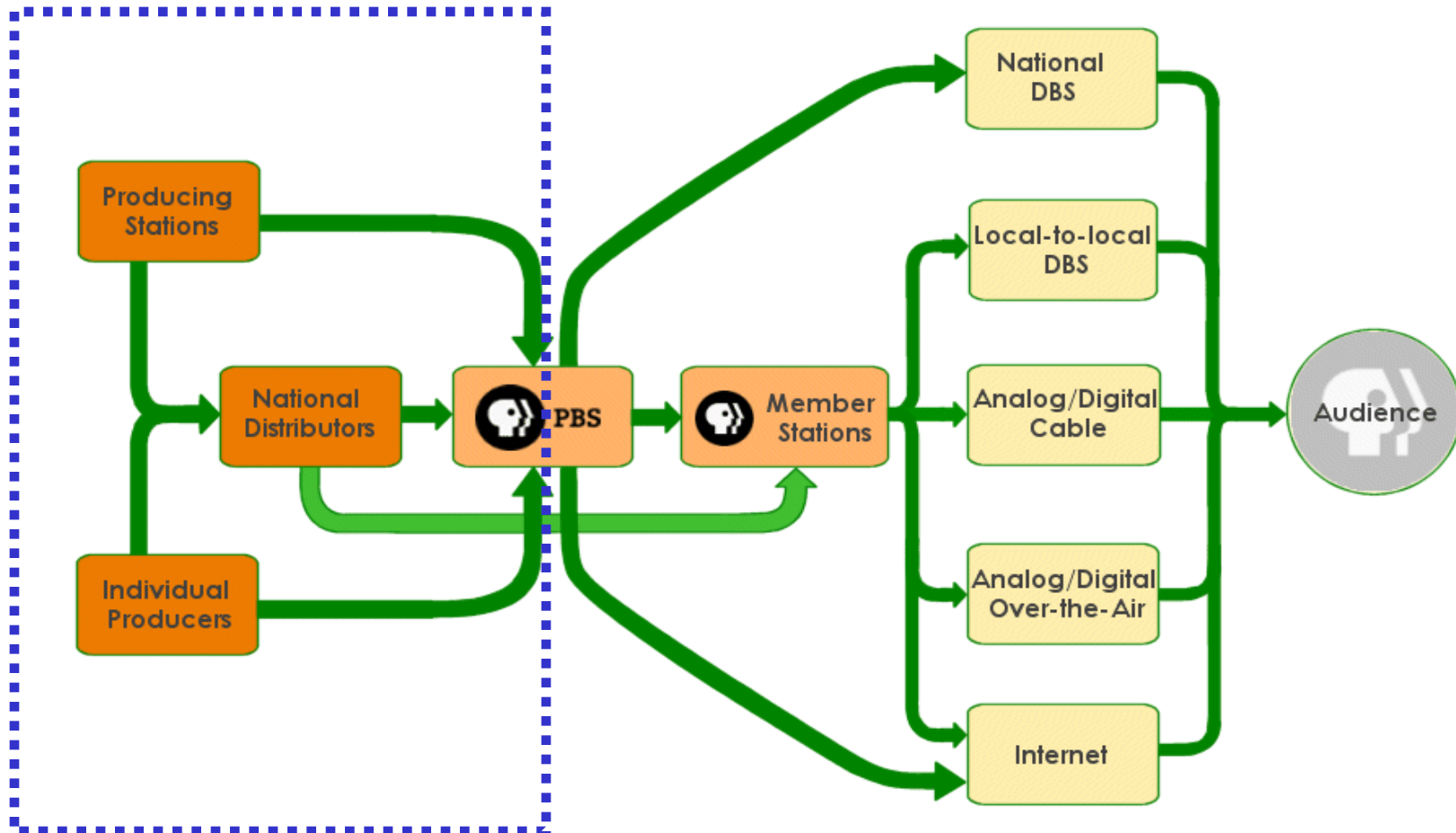


# File Ingest

PRODUCERS

DISTRIBUTORS

CONSUMERS

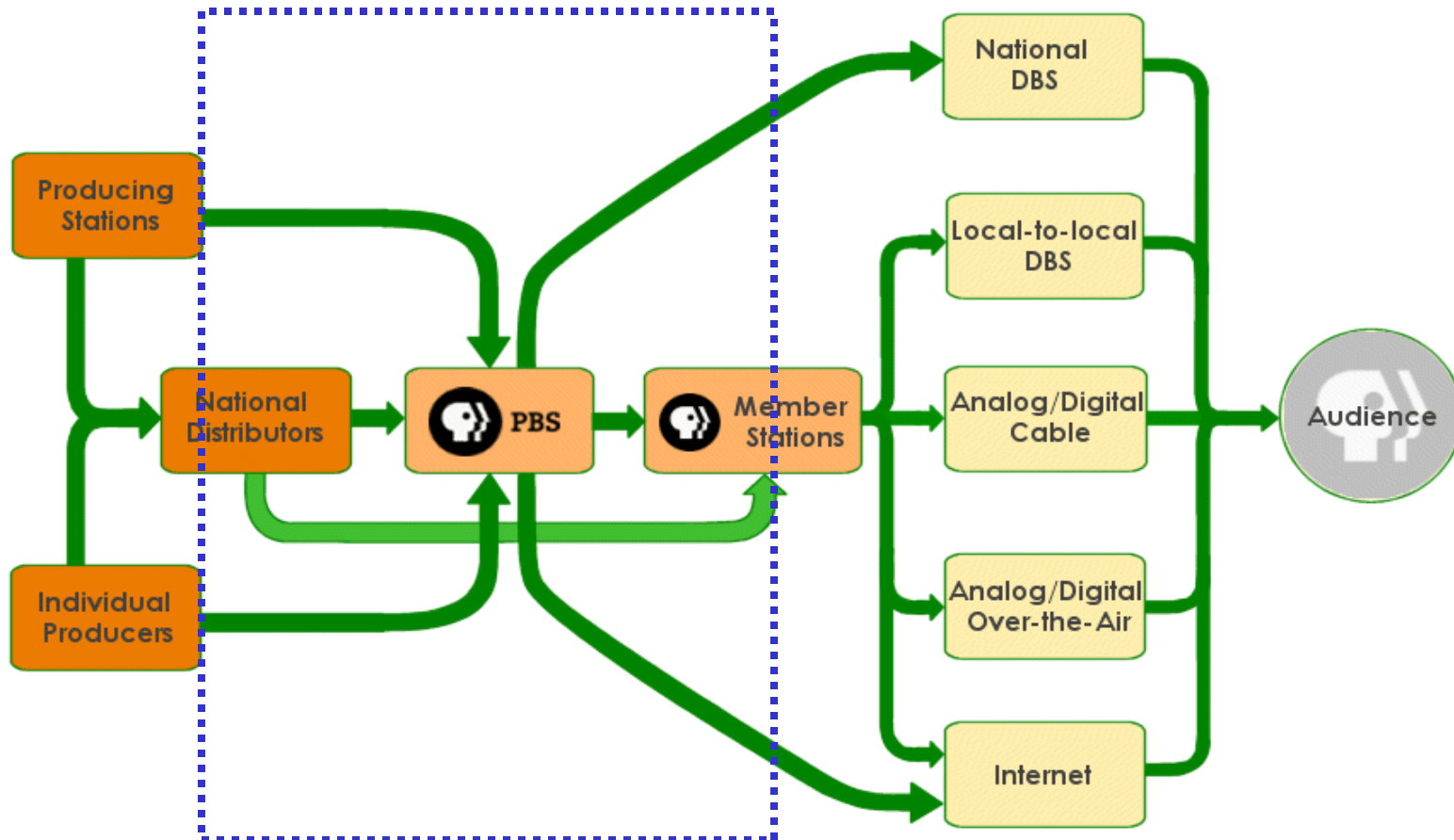


# NGIS

PRODUCERS

DISTRIBUTORS

CONSUMERS

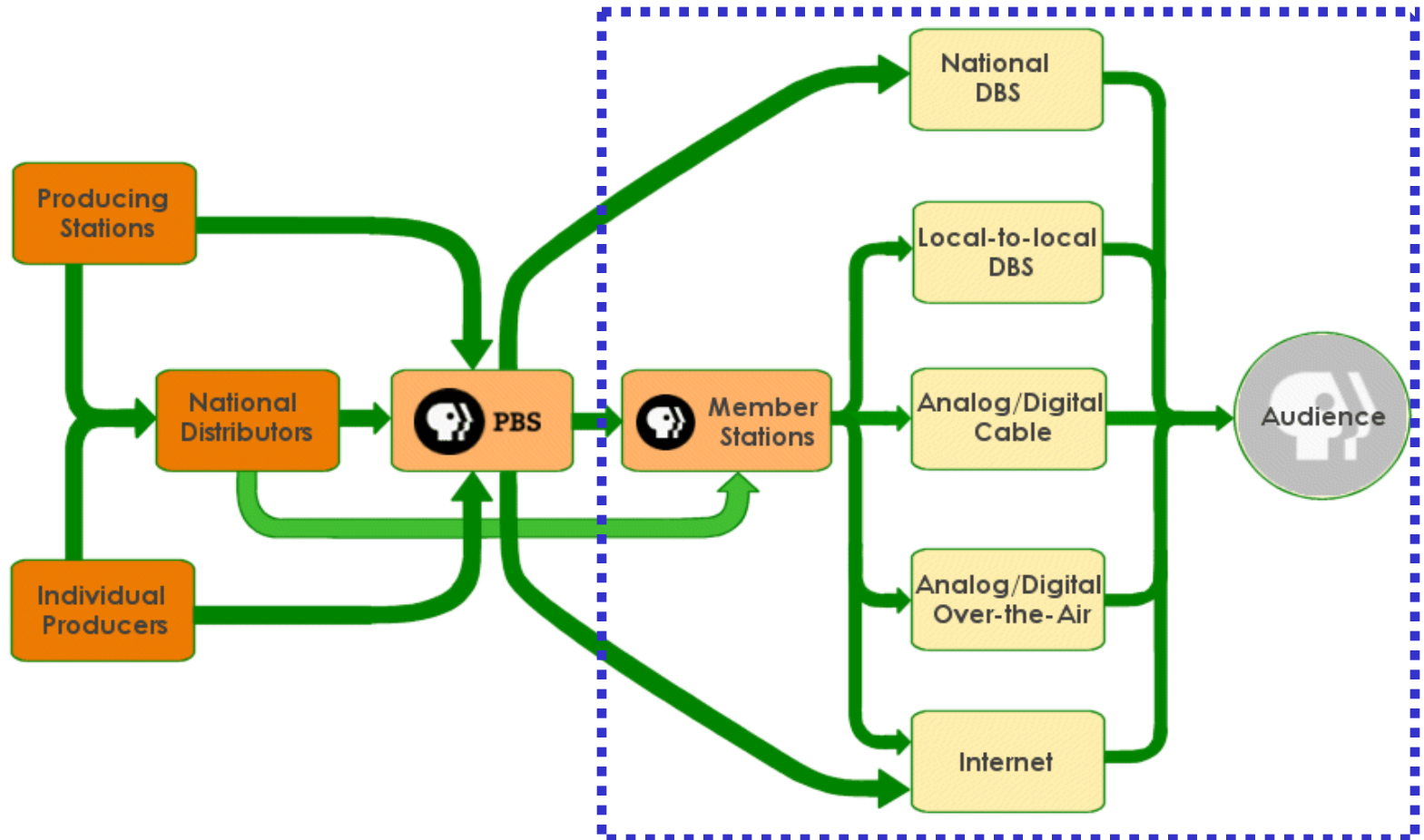


# Multicasting

PRODUCERS

DISTRIBUTORS

CONSUMERS



# *File Ingest*

- Proliferation of Non Linear Editing
- Completed programs are files
- Deliver files instead of tapes
- Standardize the file format
  - MPEG2
  - 50Mbps I frame
  - MXF-AS/PBS
  - AAF (universal metadata)



# *File Ingest Project*

- Program delivery (file transfer)
  - More reliable
  - Automated
  - Internet
- Technical Evaluation tools
  - Baseband
  - File based



# *File Preparation for NGIS*

- Flattening process for distribution
  - Create long GOP file
  - SD 8Mbps
  - HD 19.4Mbps
- Captioning and V-Chip (line 21/VANC)
  - Added to completed files
- Stream Insertion (active video)
  - Logos
  - V-Chip



# NGIS

- Increased reliability
- Transponder efficiency
  - Reduced transponder utilization
  - No Time Zone Feeds
- Operational cost reductions
  - PBS
  - Stations
- Provides foundation for peer-to-peer
  - Back channel connectivity (DS-1)
  - Toolset (Library Retrieval)



# NGIS

- Real Time (RT)
  - Live and near-live programs
  - Auto record or file transfer for time zone feeds
- Non-Real-Time (NRT)
  - 16QAM 80Mbps/36MHz transponder
  - 1 hour program delivered in 15 minutes @4xRT
  - Delivery prior to broadcast time (hours or days)
  - Eliminates 1 codec cycle
  - IP technology



# NGIS

- Edge System
  - Video/File server at each location
  - Programs/Files automatically stored or recorded
  - Central and local management
- Back Channel (DS-1)
  - ACK/NACK
  - Packet resends
  - Other file related activity



# NGIS

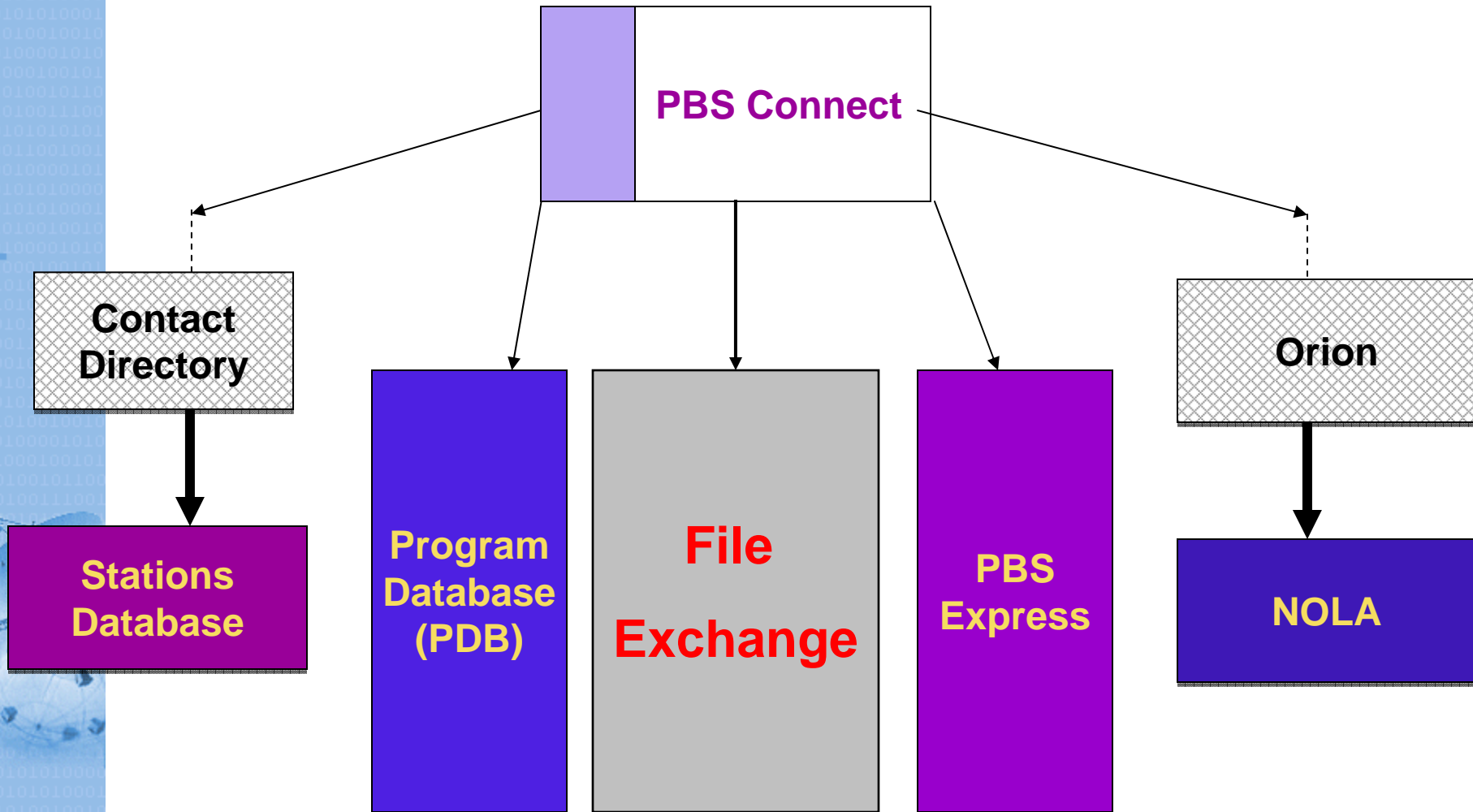
- Files
  - Broadcast quality
  - Replaces tape copy
  - Archiving
- Proxy files
  - Low resolution (VHS)
  - Screening/Preview: Desktop, DVD, Thumb Drive
- Version Control is a bigger issue as local archiving proliferates

# *Operational Modes*

- Subscription (NPS)
  - PBS initiated – Scheduled program delivery
  - RT and NRT
- Push
  - Distributor initiated - emergency program delivery method
  - RT or NRT
- Library Retrieval (Pull)
  - File Exchange Application
  - Station initiated – from the PBS archive
  - Provides stations with Peer-to-Peer tools



# File Exchange Application



# File Exchange

**PBS Connect - Microsoft Internet Explorer**

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites Media Print Mail News RSS Feeds Links

Address <http://192.168.6.31/home/> Go

Google Search Web Search Site New! PageRank Page Info Up Highlight

**PBS Connect** Personalize: Click here to personalize... I need to...

PBS Resources Messages Purchasing Communities Help

## Digital Distribution Dashboard

Who should I contact?

Alert Messages **Series Subscriptions** Program Retrievals Transfer Status View Edge Server Files

Select the series from the box on the left to populate the box on the right with your selections.

Available Series:		WGBH's Selections:
ARUR Arthur	>	AMEX American Experience
BAFR Barney & Friends	Select	FRON Frontline
BELN Between the Lions	>>	RERA Reading Rainbow
CAIU Caillou	Select All	SESA Sesame Street
COSE Charlie Rose	<	TTUB Teletubbies
CYBR Cyberchase	Deselect	
DRGN Dragonales	<<	
LECY Legacy	Deselect All	
MYST Mystery		
NAAT Nature		
	Save Selections	

Internet

# *Workflow and Process*

- Master Control
  - Unattended program acquisition
  - Program delivery prior to air
  - RT for first time zone only
  - Screening/Preview prior to air
  - File Exchange (Desktop application)
  - No refeeds for repeats
  - Metadata accuracy is critical

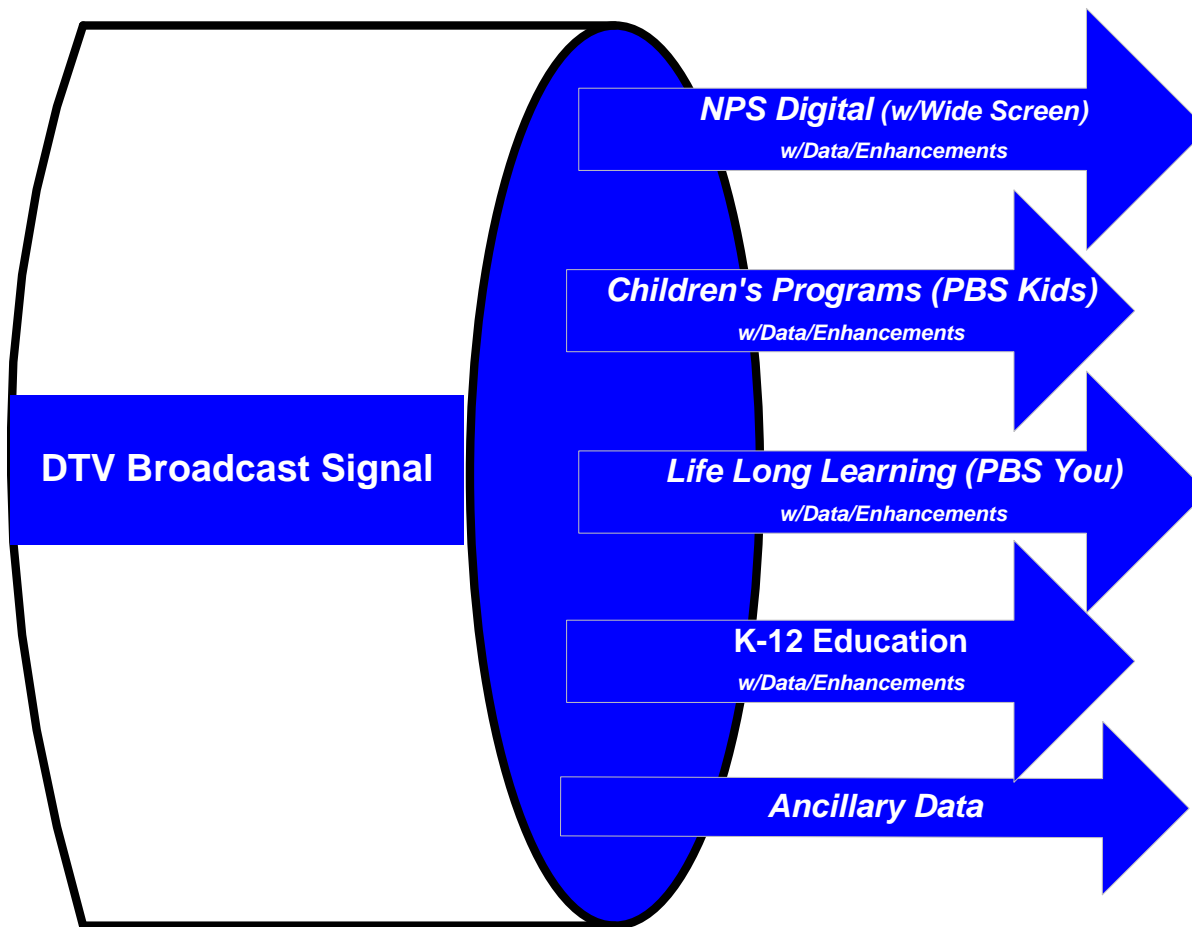


# *Workflow and Process*

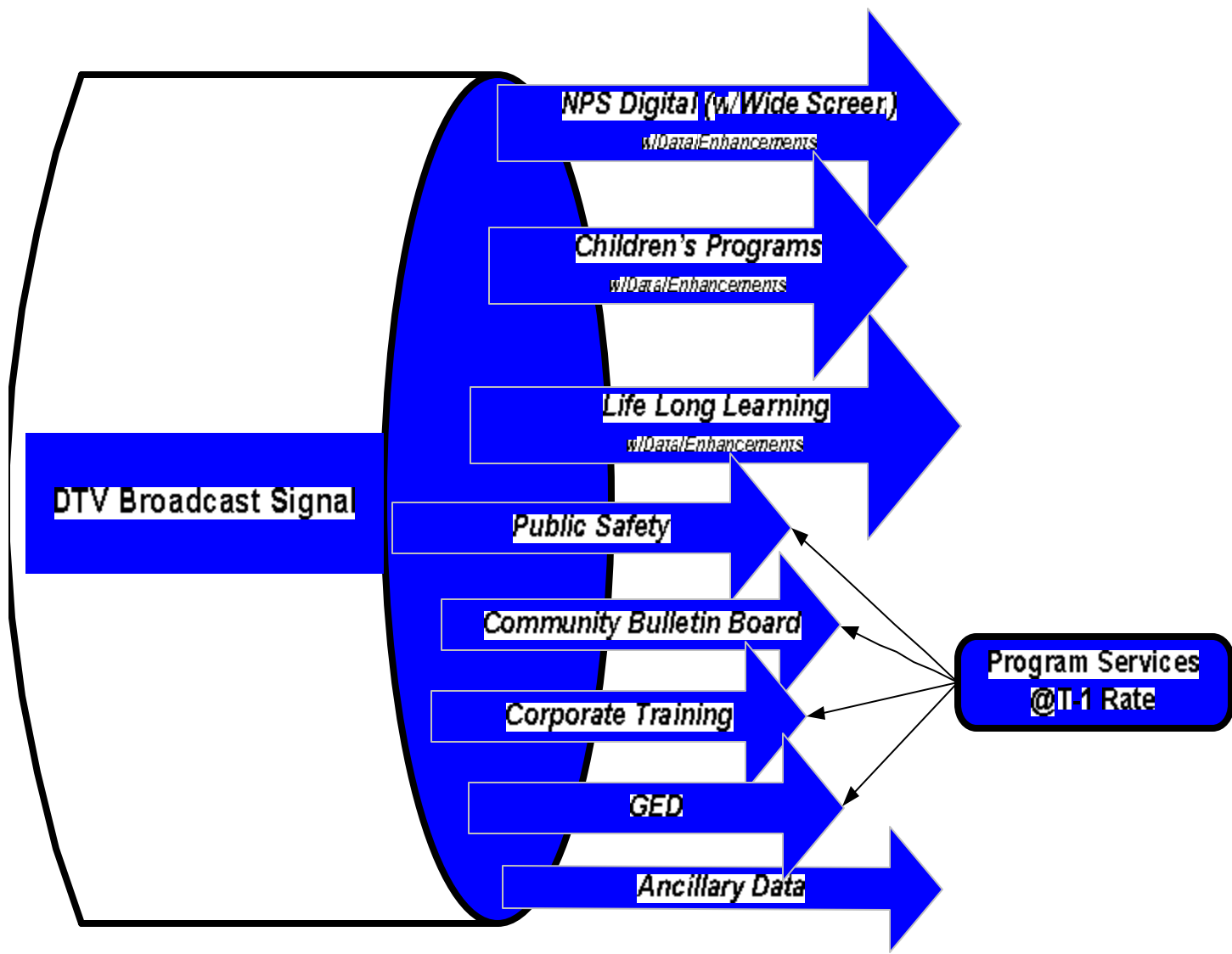
- Programming and Traffic
  - File Exchange (Desktop application)
  - Screening/Preview (Desktop application)
  - Program delay and replay scheduling function
  - Purge lists versus Record lists
  - Archiving and Asset management
  - Version control
  - Metadata accuracy is vital



# DTV Multicasting



# DTV Multicasting



# *DTV Multicasting*

- 1 Channel:
  - Content (24 hours)
  - 1 Traffic schedule
  - Branding
  - Promotion
  - Within schedules
- 4 Channels:
  - Content (96 hours)
  - 4 Traffic schedules
  - Branding (per service)
  - Promotion (per service)
  - Repeats within and across schedules



# *DTV Multicasting*

- **NGIS NRT**
  - Program delivery hours or days before air time
  - Unattended delivery (caching)
  - More local flexibility
  - Higher reliability
  - Covers all time zones
  - Cover all repeats

# *DTV Multicasting*

- NGIS RT (Live/Near-live) single feed
  - Covers all time zones
  - Covers all repeats
- Server based
  - Multiple simultaneous streams
  - Minimal management
  - High reliability
  - Automated archiving and retrieval



# *NGIS and Multicasting*

- Content
  - When you need
  - As often as you need it

