
Content Handling and Controlling in Heterogeneous Networking Environment.

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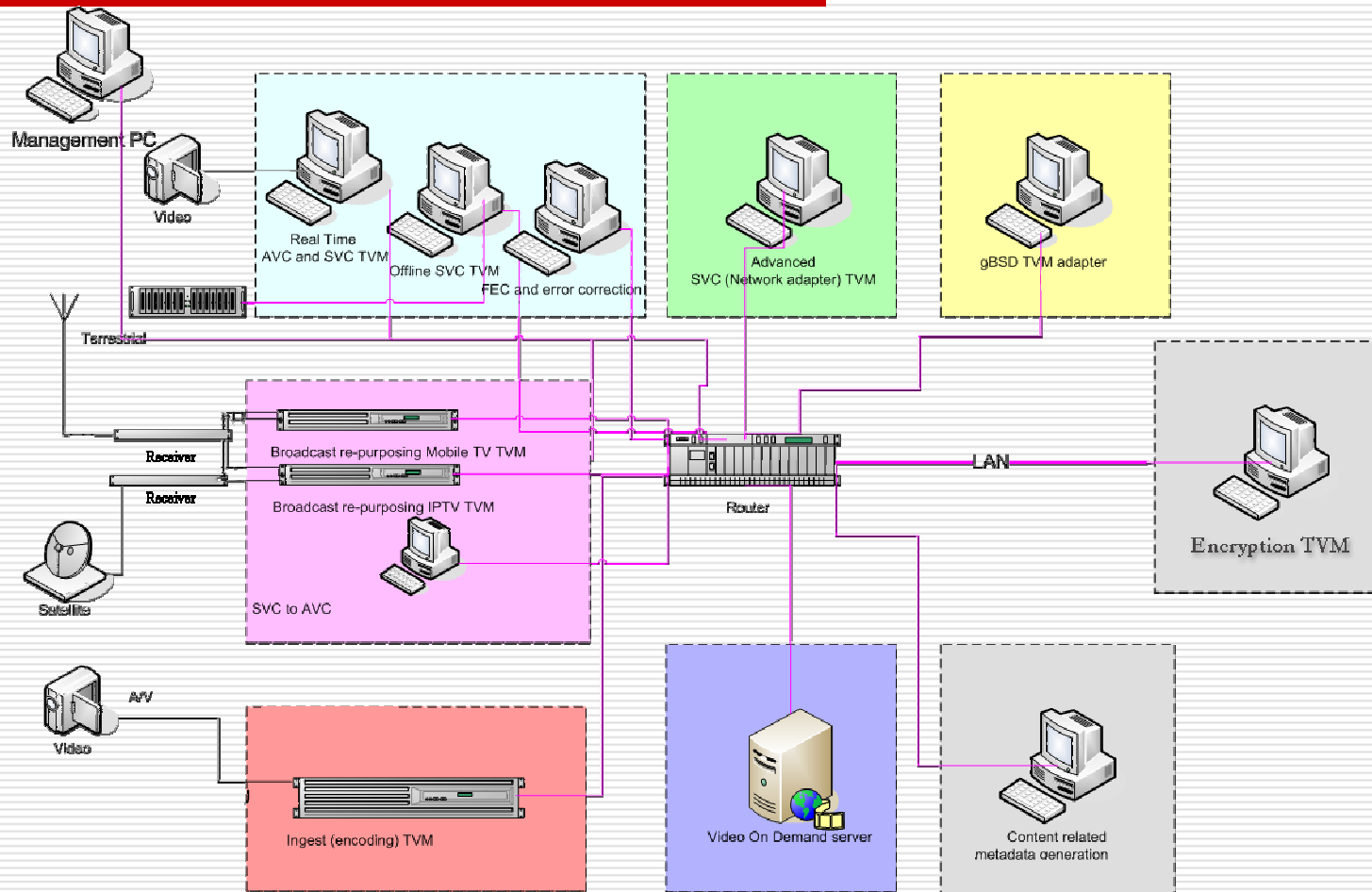
Introduction

- ❑ ENTHRONE as an example of complex multimedia content creation, adaptation protection and distribution platform.
- ❑ Rich multimedia scenarios.
- ❑ New approach to the platform integration.
- ❑ Standard interfaces and protocols.

ENTHRONE content handling platform comprises the following tools (TVMs):

Real time AVC and SVC TVM	Ingest TVM
Offline SVC TVM	SVC Adaptation TVM
Error protection TVM	VOD TVM
Broadcast re-purposing Mobile TVM	gBSD TVM adaptor
Broadcast re-purposing IPTV TVM	Encryption (content protection) TVM

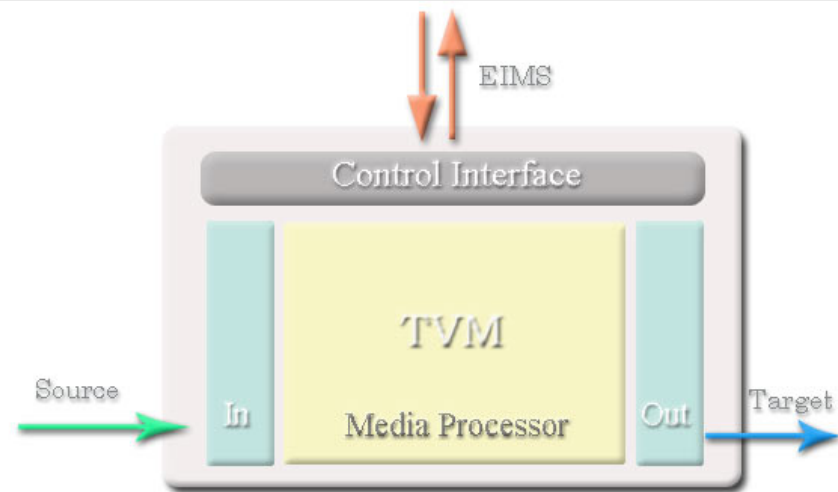
Architecture.



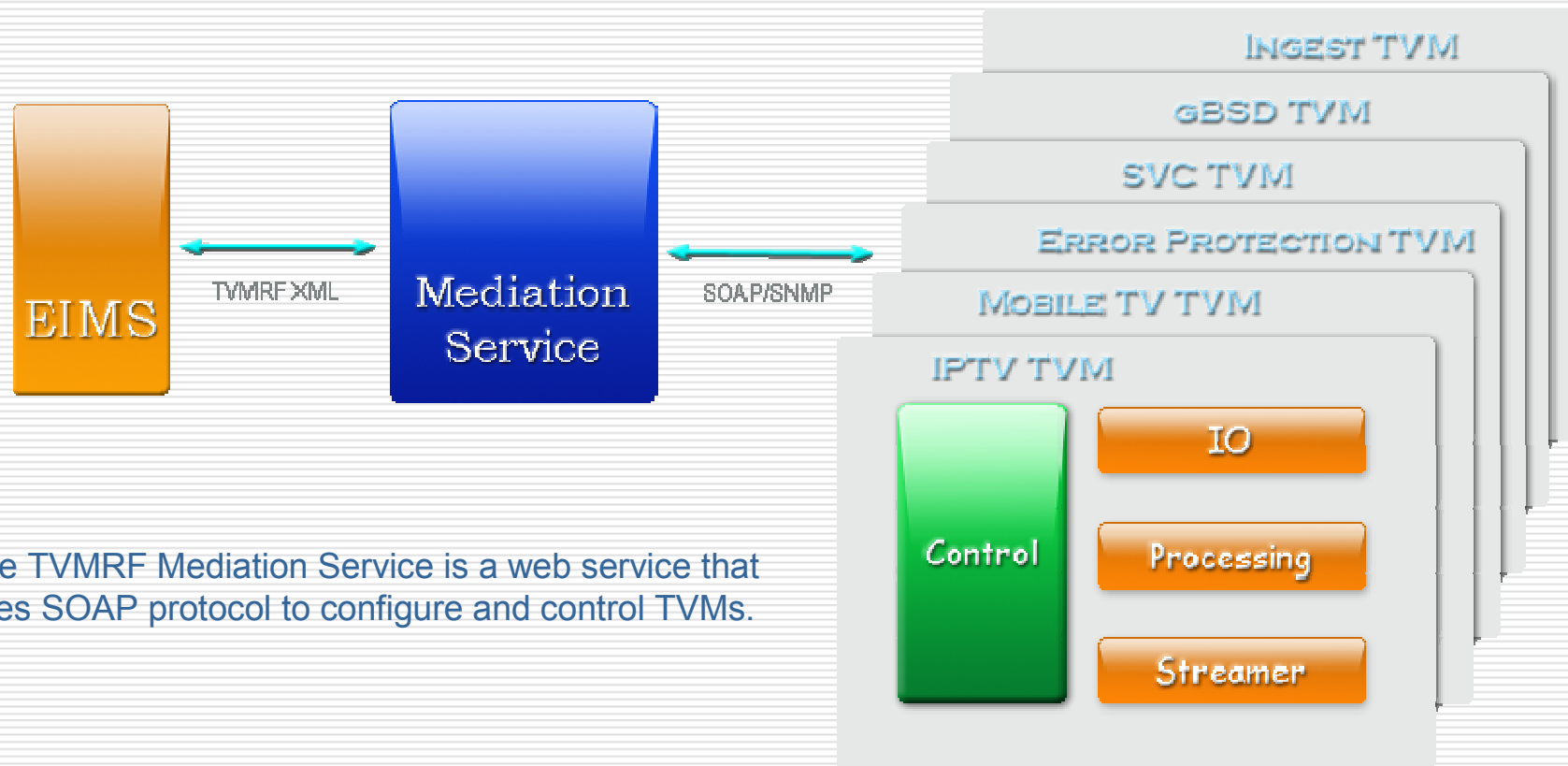
TVMs

TVM is a processing module responsible for content generation, adaptation and metadata manipulation according to the EIMS commands .

TVM can be seen as a black box with audio-visual content inputs from various sources (e.g., TV, IP, terrestrial / satellite IRD etc), that generates compressed multimedia streams and delivers them over IP.



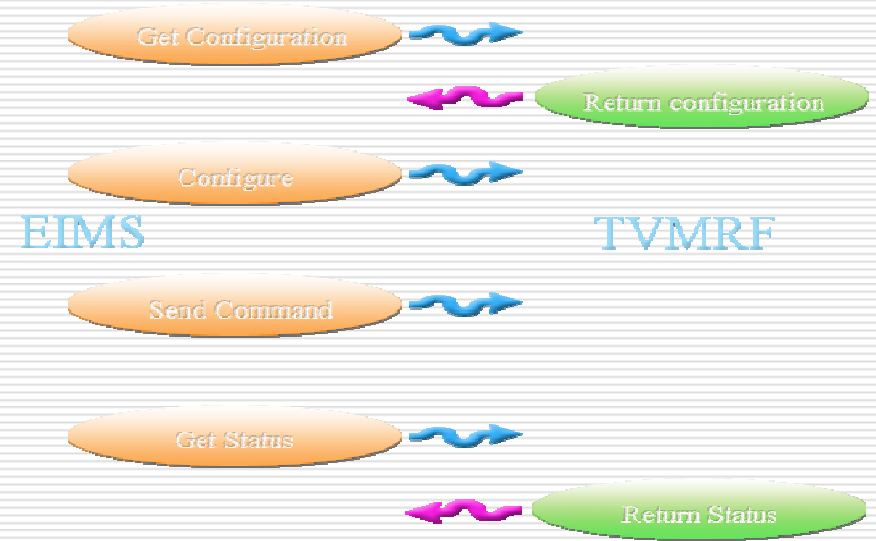
Unified management interface



The TVMRF Mediation Service is a web service that uses SOAP protocol to configure and control TVMs.

Common TVM interface.

- Get Capabilities** message allows capabilities retrieval from the TVM configuration. This information is used to choose a proper TVM for content handling task.
- Get Configuration** message allows retrieval of current TVM configuration. The return information parameter is an instance of TVMRF XML metadata
- Configure** message allows sending of configuration information to the TVM (the parameter is an instance of TVMRF XML metadata)
- Command** message allows sending of commands to be applied on a specified service.
- Get Status** message allows retrieval of the status of specified services.



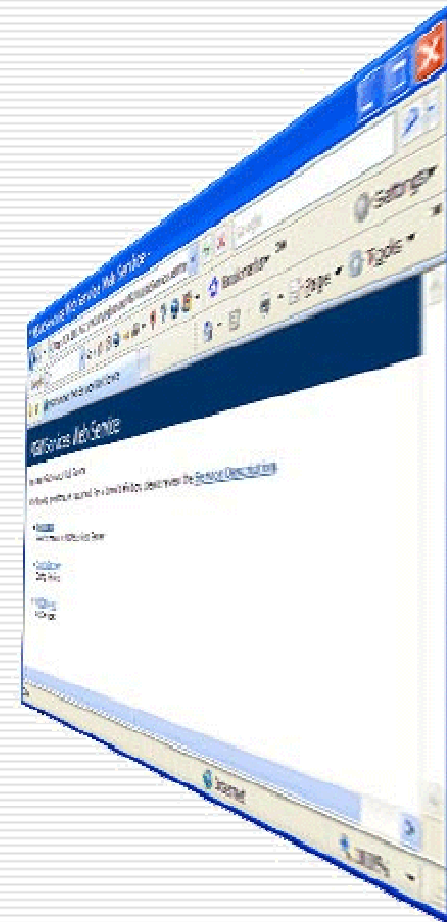
TVM interface – web access

Provides SOAP interface to the adaptation platform

Passes the configuration and control XML to and from the platform

How to use?

1. Specify the IP of the platform
2. **GetCapabilities** returns the capabilities description
3. **GetServices** delivers current configuration from the platform
4. **ConfigServices** submits configuration data to the platform
5. **Command** function controls specific service
6. **Status** function monitors a current status of the service

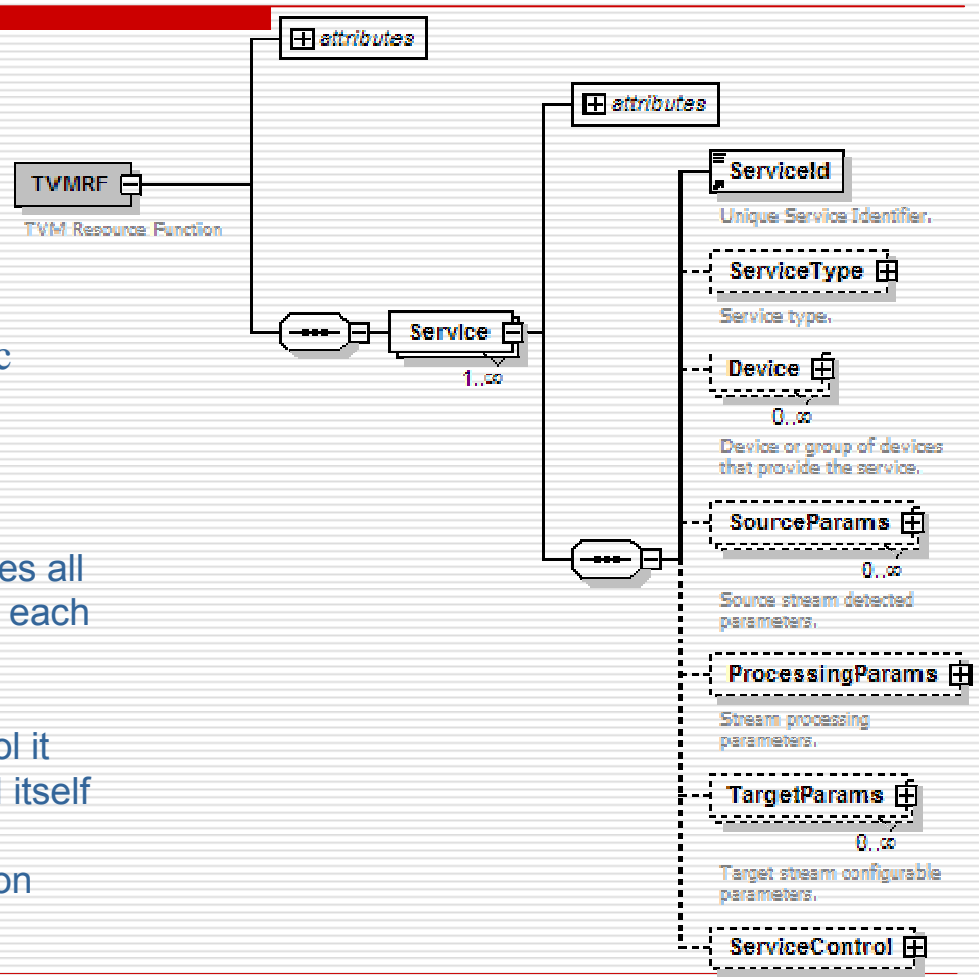


TVMRF – Metadata model

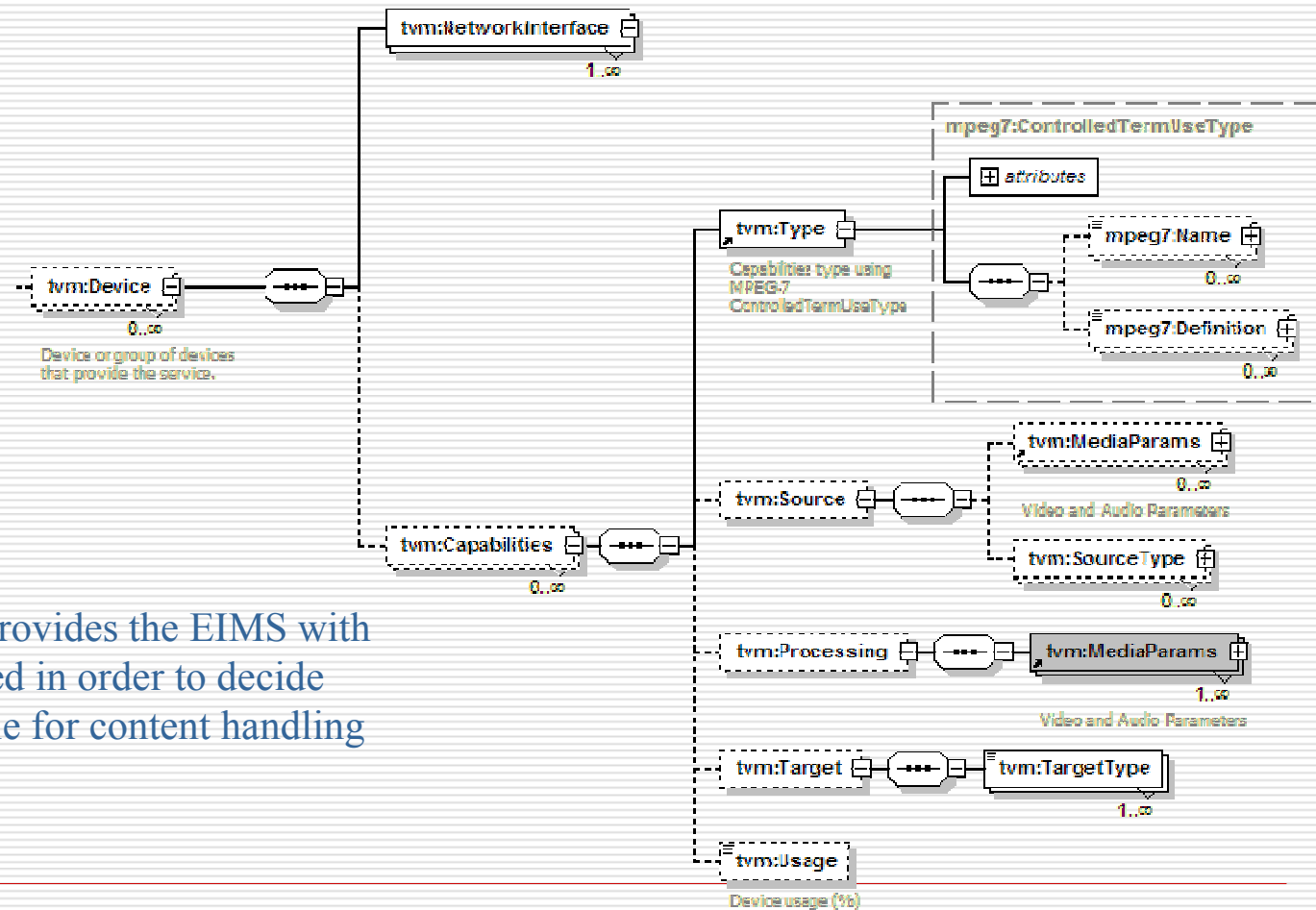
TVMRF-TVM Resource function configuration & control of content creation, adaptation and streaming equipment.

MPEG 7, TVAnytime, Enthroned specific metadata.

TVM processors provide media handling services such as encoding, transcoding, transrating, etc. The TVMRF schema defines all the parameters needed to uniquely identify each particular service, configure it with the parameters set received from EIMS, dynamically control it and retrieve the information about the TVM itself and a multimedia stream processed. The TVMRF schema may contain the information about one or many services (TVMs).



TVMRF – Capabilities section



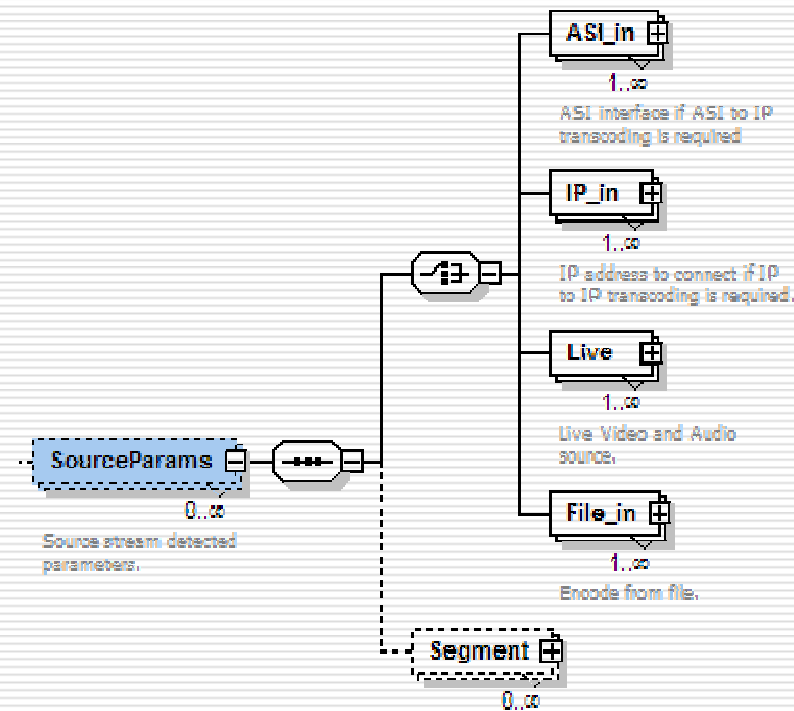
Capabilities section provides the EIMS with the information needed in order to decide which TVM is suitable for content handling task.

TVMRF – Source section

Source section

Interface configuration parameters,
Video/Audio Source detected information.

This section specifies TVM source signal parameters. It tells the TVM where it should receive the content from.

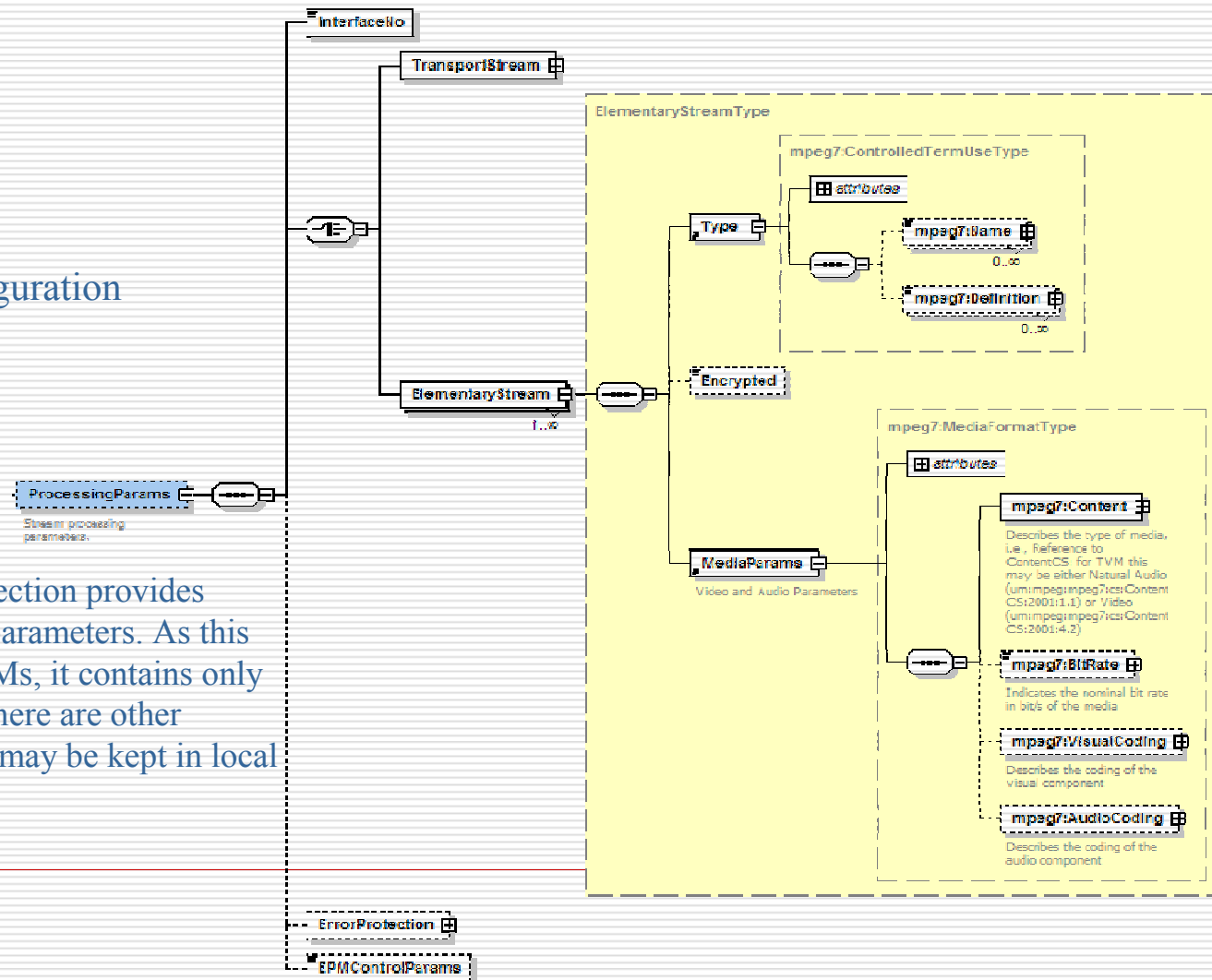


TVMRF – Processing section

Processing section

Processing engine configuration
 Parameters.

TVMRF Processing Params section provides TVM with the configuration parameters. As this section is common for all TVMs, it contains only most important parameters. There are other configuration parameters that may be kept in local configuration files in TVMs.

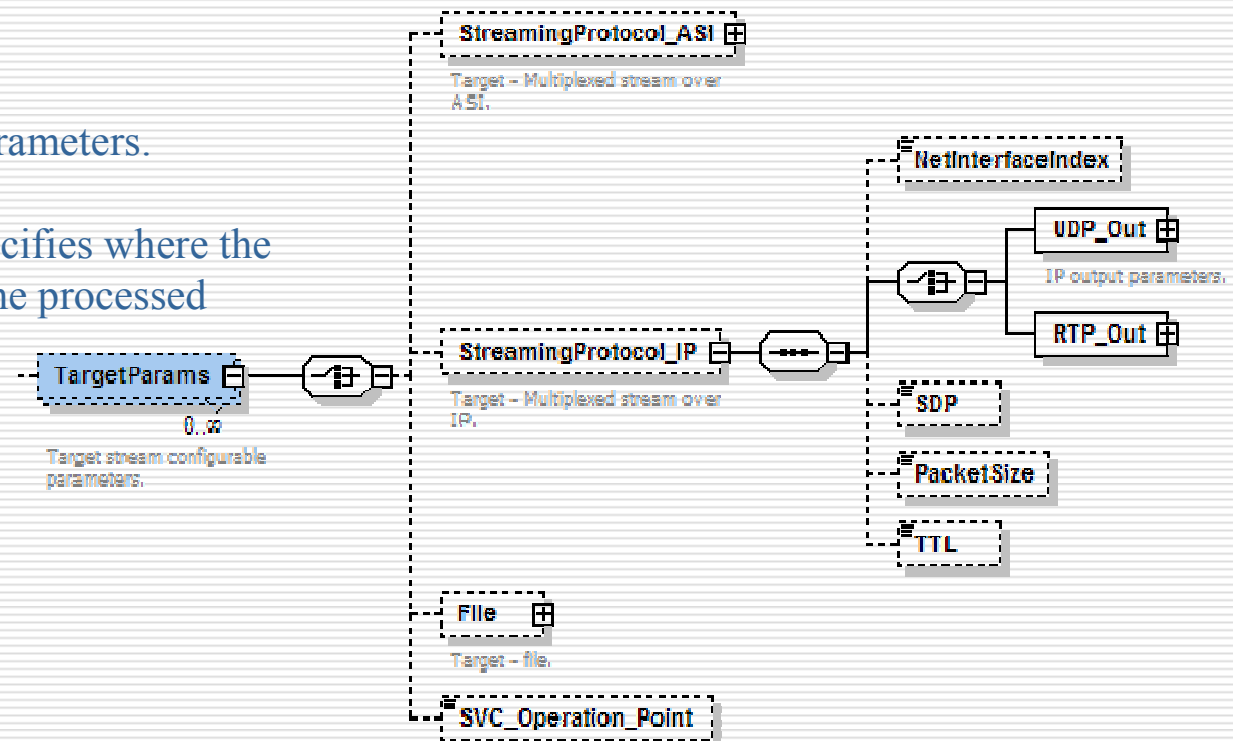


TVMRF – Target section

Target section

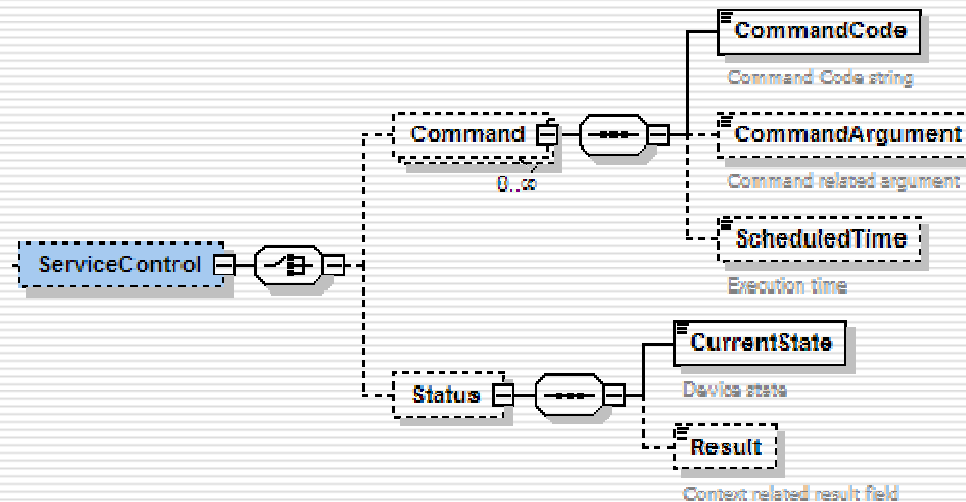
Streaming configuration parameters.

TVMRF Target Section specifies where the TVM should stream/store the processed content.



TVMRF Command interface

Command interface
Service control and monitoring.



Common TVM interface

Conclusions:

Having walked through this brief description of the generic configuration/control interface for multimedia creation and distribution we've examined the potential role that this approach might play in guiding and facilitating complex content delivery system development. The approach illustrated here may speed up system integration and allow seamless scalability and extensibility. Among many benefits associated with it, is a completely platform agnostic manner in which EIMS deals with various content handling processors from different partners. This, coupled with the industry-wide adoption and support of SOAP based web services enables virtually universal interoperability between the sub systems and readiness for new features addition and new content formats support.
