UniSoft is a software company which focuses on ATSC 3.0 delivery for broadcasters.

Founded in 1981 originally as a UNIX porting house.

Been working in the ATSC space since 1997. DASE conformance test suite.

Is a reseller and systems integrator for ATSC 3.0 delivery components.

Through a partnership with the Signal Infrastructure Group we offer a remote learning solution which can operate either using ATSC 1.0 or 3.0.

Broadcast Application, using SCTE 35/104 and Xlinks for DAI and content replacement.
• Increased bandwidth in 6MHz. 26Mbps is typical.
• COFDM modulation, proven ability to overcome multipath effects. Therefore much better reception in doors, built-up areas and mobile.
• Vastly superior video encoding. Eleven services with HEVC at 1.3 Mbps works well. More programs and content.
• Advanced Emergency Alerts including so-called rich media.
• UHD TV.
• Immersive sound.
• Interactive Runtime Environment, HTML5 based interactive applications, new business models.
• IP based, hybrid solution so works well over the Internet.
• Single Frequency Networks.
TV Station in a Box
• Use of SHVC takes advantage of the Hybrid nature of ATSC 3.0.
• Key advantage over just streaming video over the Internet.
DAI Ecosystem Summary

Summary DAI Block Diagram
Media Processing at the Broadcast Station

- Media of arrives at the station:
  - Nationals Ads
  - Agency Ads
  - TV Shows
  - Station Promos

- Media Information in entered into the WideOrbit Traffic System.

- WideOrbit creates a playlist for Digital Broadcast Automation and for Freewheel Content Decision Engine.
### Digital Broadcast Automation Playlist

<table>
<thead>
<tr>
<th>TIME</th>
<th>ID</th>
<th>NAME</th>
<th>ADID</th>
<th>EIDR</th>
<th>Replaceable</th>
</tr>
</thead>
<tbody>
<tr>
<td>5:00:00</td>
<td>SH001</td>
<td>Show 1 Seg 1</td>
<td>AGNC1234</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>5:07:10</td>
<td>PR001</td>
<td>Station Promo</td>
<td>AAAA1111</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>5:07:40</td>
<td>AD002 National AD</td>
<td>AAAA1111</td>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
</tbody>
</table>

### Freewheel Playlist

<table>
<thead>
<tr>
<th>TIME</th>
<th>ID</th>
<th>NAME</th>
<th>ADID</th>
<th>EIDR</th>
<th>Replaceable</th>
</tr>
</thead>
<tbody>
<tr>
<td>5:00:00</td>
<td>SH001</td>
<td>Show 1 Seg 1</td>
<td>AGNC1234</td>
<td>N</td>
<td>TRUE</td>
</tr>
<tr>
<td>5:07:10</td>
<td>PR001</td>
<td>Station Promo</td>
<td>AAAA1111</td>
<td>N</td>
<td>TRUE</td>
</tr>
<tr>
<td>5:07:40</td>
<td>AD002 National AD</td>
<td>AAAA1111</td>
<td>N</td>
<td>N</td>
<td>FALSE</td>
</tr>
</tbody>
</table>
• Any items that do not have an ADID or EIDR trigger a registration app.
• For Show content, the EIDR is typically provided by the distributor, but if not available then the local operator will register the content using the Digital Broadcast EIDR registration app.
• For Ad content if an AD-ID is not provided, the local operator will register using the Digital Broadcast AD-ID registration app.
## Digital Broadcast Automation Playlist

<table>
<thead>
<tr>
<th>TIME</th>
<th>ID</th>
<th>NAME</th>
<th>ADID</th>
<th>EIDR</th>
</tr>
</thead>
<tbody>
<tr>
<td>5:00:00</td>
<td>SH001</td>
<td>Show 1 Seg 1</td>
<td>10.123/1234-5689-9ABC-DEFO-K</td>
<td></td>
</tr>
<tr>
<td>5:07:10</td>
<td>PR001</td>
<td>Station Promo</td>
<td>NPGB1000</td>
<td></td>
</tr>
<tr>
<td>5:07:40</td>
<td>AD002</td>
<td>National AD</td>
<td>AAAA1111</td>
<td></td>
</tr>
</tbody>
</table>

### Digital Broadcast Updates WideOrbit

The Digital Broadcast registration apps return the new AD-ID/EIDR to the WideOrbit database where it is recorded in the media record.

<table>
<thead>
<tr>
<th>Desc</th>
<th>ID</th>
<th>ADID</th>
<th>EIDR</th>
<th>Replaceable</th>
<th>Contracted Plays</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agency AD</td>
<td>AD001</td>
<td>AGNC1234</td>
<td></td>
<td>N</td>
<td>3000</td>
</tr>
<tr>
<td>National Ad</td>
<td>AD002</td>
<td>AAAA1111</td>
<td></td>
<td>N</td>
<td>3000</td>
</tr>
<tr>
<td>Station Promo</td>
<td>PR001</td>
<td>NPGB1000</td>
<td></td>
<td>Y</td>
<td>3000</td>
</tr>
<tr>
<td>Show 1</td>
<td>SH001</td>
<td>10.123/1234-5678-9ABC-DEFO-K</td>
<td>Y</td>
<td>3000</td>
<td></td>
</tr>
</tbody>
</table>
WideOrbit updates the playlist for Freewheel Content Decision Engine

<table>
<thead>
<tr>
<th>Desc</th>
<th>Station ID</th>
<th>ADID</th>
<th>EIDR</th>
<th>Replaceable</th>
<th>Contracted Plays</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agency AD</td>
<td>AD001</td>
<td>AGNC1234</td>
<td>N</td>
<td>3000</td>
<td></td>
</tr>
<tr>
<td>National Ad</td>
<td>AD002</td>
<td>AAAA1111</td>
<td>N</td>
<td>3000</td>
<td></td>
</tr>
<tr>
<td>Station Promo</td>
<td>PR001</td>
<td>NPG1000</td>
<td>Y</td>
<td>3000</td>
<td></td>
</tr>
<tr>
<td>Show 1</td>
<td>SH001</td>
<td>10.123/1234-5678-9ABC-DEF0-K</td>
<td>Y</td>
<td>3000</td>
<td></td>
</tr>
</tbody>
</table>

#Freewheel Playlist

<table>
<thead>
<tr>
<th>TIME</th>
<th>ID</th>
<th>NAME</th>
<th>ADID</th>
<th>EIDR</th>
<th>Replaceable</th>
</tr>
</thead>
<tbody>
<tr>
<td>5:00:00</td>
<td>SH001</td>
<td>Show 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5:07:10</td>
<td>PR001</td>
<td>Station Promo</td>
<td>NPGB1000</td>
<td></td>
<td>TRUE</td>
</tr>
<tr>
<td>5:07:40</td>
<td>AD002</td>
<td>National AD</td>
<td>AAAA1111</td>
<td></td>
<td>FALSE</td>
</tr>
</tbody>
</table>
Advertising media is encoded to run in the automation system, but also multiple DASH versions are created and uploaded to a Content Delivery Network.
Advertising Media URL Recording

The URLs for the CDN content are sent to the Freewheel Content Decision Engine.
## Digital Broadcast

### MediaBank - Channel 1 - UNISOFT

![MediaBank screenshot](image)

**Device** | **Time** | **ID** | **Length** | **Description** | **Transition**
---|---|---|---|---|---
DECODE1 | 16:48:55:03 | 10001 | 00:00:29:28 | 30 second break | 
DECODE1 | 16:49:25:03 | unity_kenny | 00:01:00:03 | Program | 
DECODE1 | 16:50:25:04 | newapp-out | 00:00:29:04 | 
SPLICE | 00:00:00:00 | 
DECODE1 | 16:50:54:08 | 10001 | 00:00:29:28 | 30 second break | 
DECODE1 | 16:51:24:08 | unity_kenny | 00:00:59:29 | Program | 
SPLICE | 00:00:00:00 | 
DECODE1 | 16:52:53:11 | 10001 | 00:00:30:00 | 30 second break | 
DECODE1 | 16:53:23:13 | unity_kenny | 00:00:59:29 | Program | 
DECODE1 | 16:54:23:14 | newapp-out | 00:00:29:02 | 
SPLICE | 00:00:00:00 | 
DECODE1 | 16:54:52:16 | 10001 | 00:00:30:00 | 30 second break | 
DECODE1 | 16:55:22:18 | unity_kenny | 00:00:59:29 | Program | 
DECODE1 | 16:56:22:19 | newapp-out | 00:00:29:02 | 
SPLICE | 00:00:00:00 | 
DECODE1 | 00:00:00:00 | 
DECODE1 | 16:57:21:23 | unity_kenny | 00:00:59:29 | Program | 
DECODE1 | 16:58:21:24 | newapp-out | 00:00:29:02 | 
SPLICE | 00:00:00:00 | 
DECODE1 | 16:58:50:26 | 10001 | 00:00:30:00 | 30 second break | 
DECODE1 | 16:59:20:28 | unity_kenny | 00:00:59:29 | Program | 
SPLICE | 00:00:00:00 |
SCTE Marker Creation using Unique IDs

The playlist is processed by the Digital Broadcast playout server. 6 seconds before the current Playing media completes a SCTE marker is generated. This SCTE marker includes the start time for the next piece of media, its duration, and its AD-ID or EIDR.

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Device</th>
<th>Status</th>
<th>ID</th>
<th>Length</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>04:58:42:01</td>
<td>DUR</td>
<td>DUR</td>
<td>DUR</td>
<td>DUR</td>
<td>00:00:00:00:00</td>
<td>Station Promo</td>
</tr>
<tr>
<td>04:58:45:01</td>
<td>DUR</td>
<td>DUR</td>
<td>DUR</td>
<td>DUR</td>
<td>00:00:00:00:00</td>
<td>Station News</td>
</tr>
<tr>
<td>04:58:50:00</td>
<td>DUR</td>
<td>DUR</td>
<td>DUR</td>
<td>DUR</td>
<td>00:00:00:00:00</td>
<td>Station Weather</td>
</tr>
<tr>
<td>05:07:40:00</td>
<td>DUR</td>
<td>DUR</td>
<td>DUR</td>
<td>DUR</td>
<td>00:00:00:00:00</td>
<td>Station Promo</td>
</tr>
</tbody>
</table>

**SCTE-35 marker**
Start Time 05:00:00:00
Duration 00:07:10:00
UPID: 10.123/1234-5678-9ABC-DEF0-K

**SCTE-35 marker**
Start Time 05:07:10:00
Duration 00:00:30:00
UPID: NPG51000

**SCTE-35 marker**
Start Time 05:07:40:00
Duration 00:00:30:00
UPID: AAA1111
Conversion of SCTE-35 to Xlink
Preserving the Unique IDs

The Ateme Titan Live generates a new Period in the DASH MPD file for each new SCTE-35 marker it receives. The Unique ID is passed through from the SCTE-35 marker to the Xlink in the new period.

- **SCTE-35 marker**
  - **Start Time:** 05:00:00:00
  - **Duration:** 00:07:10:00
  - **UPID:** 10.123/1234-5678-9ABC-DEF0-K

- **SCTE-35 marker**
  - **Start Time:** 05:07:10:00
  - **Duration:** 00:00:30:00
  - **UPID:** NPGB1000

- **SCTE-35 marker**
  - **Start Time:** 05:07:40:00
  - **Duration:** 00:00:30:00
  - **UPID:** AAAA1111

---

```xml
_PERIOD duration="PT7M10.0032225" id="P1232" start="PT128H32M7.1315335"
 xlink: actuate="onLoad"
 xlink:href="tag:atsc.org,2016;xlinkhttp://npg.freewheel.com/ads?fps=5994&amp;r=75
  7283401&amp;videoid=10.123/1234-5678-9ABC-DEF0-K&amp;p"
 xlink: show="embed" xmlns:xlink="http://www.w3.org/1999/xlink">

_PERIOD duration="PT30S" id="P1233" start="PT128H39M17.1347555"
 xlink: actuate="onLoad"
 xlink:href="tag:atsc.org,2016;xlinkhttp://npg.freewheel.com/ads?fps=5994&amp;r=75
  7283401&amp;videoid=NPGB1000&amp;p" xlink: show="embed"
 xmlns:xlink="http://www.w3.org/1999/xlink">

_PERIOD duration="PT30S" id="P1234" start="PT128H39M47.1315335"
 xlink: actuate="onLoad"
 xlink:href="tag:atsc.org,2016;xlinkhttp://npg.freewheel.com/ads?fps=5994&amp;r=75
  7283401&amp;videoid=AAAA1111&amp;p" xlink: show="embed"
 xmlns:xlink="http://www.w3.org/1999/xlink">
```
Receiver Xlink Processing

The viewer’s device will receive the Xlink and pass it to the Broadcast App for resolution.
Welcome Lydia

Solvang City Council rescinds decision to ... 2 min 16 sec

Solvang City Council backtracks on plans to cut contracts with chamber and visitors bureau after being accused of violating Brown Act.

SANTA BARBARA- S COUNTY | KEYT

4K DEMO

Virginia Beach, 55° F, few clouds Tue Aug 13 2:30 pm
And finally a few words from an expert...

It’s, like, people only do things because they get paid,