CLOUDPORT
Graphics overview

Amit Goel
Product Manager, Amagi
Introduction

Amagi CLOUDPORT is an advanced cloud-based playout system. CLOUDPORT can be used to ingest content, graphics, and commercials on cloud, and to manage the live playout using a unified web-based interface. Unlike traditional systems, CLOUDPORT can be deployed much faster, and can reduce the infrastructure costs without compromising on quality. CLOUDPORT is also highly versatile and can be used to support completely virtual or hybrid playout requirement.

Broadcast-grade graphics

TV channels today have a much more varied graphics requirement that are critical to communicate the channel branding and experience. The frequency of graphics played out has also increased in recent past, making the management of graphics more complex, and time-consuming task. CLOUDPORT supports multi-layered graphics rendering with a higher level of automation to simplify the graphics playout. Rich animated sequences can be played out as static, or template-driven, rule-based graphics using CLOUDPORT’s graphics ingest and automated scheduling function.

How CLOUDPORT manages media assets

The program content or commercials are normally categorized as primary media assets. Graphics are secondary assets related to a specific primary asset. CLOUDPORT can seamlessly playout both primary and secondary assets using an advanced scheduling system. However, CLOUDPORT can also play independent secondary graphics at a fixed time for a given duration.
Types of graphics supported by Amagi

Following are the types of graphics that are supported by Amagi CLOUDPORT

Static graphics or Animated sequences

Static graphics are designed once and do not have any dynamic element that needs to be added or modified during playout. This can be an image or an animated graphic.

- **Logos/Bugs**: Channel logos or small animated promos overlaid on the primary video.

- **Promos**: Animated banners that can be designed to be overlaid anywhere in the screen for promotion of upcoming events or shows.

- **Lower-third banners**: Animated screen banners used for a variety of purposes such as co-branding, or for promoting other programs or upcoming events on the channel.

- **Full screen cards**: Used to display information such as film classification or other advisory notices.
Time-based graphics

These are independent graphics played out at fixed intervals as primary graphic and can include a variety of graphic types. These are not related to any other elements of the playout. For example:

Channel bumper: Typically used to promote channel or TV network brand with full-screen animation. This is often played out as a time-based or independent graphic.

Advanced dynamic graphics

Amagi CLOUDPORT provides an automated way of publishing dynamic graphics in the playlist by using the template of the graphic. The templatization ensures that the dynamic graphic file contains the placeholders where the metadata information can be updated during playout. First, the templates are created using Adobe After Effects software with variables such as $NOW, $NEXT, $LATER. These variables are automatically pulled from the playlist and displayed on the graphics template. This way, a dynamic graphic is created only once but can be used any number of times repeatedly in an automated way. Following are the types of dynamic graphics.

Full screen Now / Next / Later
A full screen dynamic bumper that is used to convey currently playing, and upcoming programs.

Music album / artist information
Lower-third banner with textual information such as song title and artist name.

‘Back in’ counter
A live updating digital clock used to display time based on playlist input.

Countdown
Live updating countdown timer based on input in the playlist.
Advanced graphics/Digital Video Effects (DVE)

DVE is most commonly used for promotional purposes and can be automated using Adobe After Effect templates. These graphics can be played out with embedded video or images with Picture-in-Picture (PIP) effect. CLOUDPORT can support following set of DVE graphics.

**L-Band**  
Animated graphic during the playback of a primary asset with effect of shrinking or squeezing the primary video from side and bottom. This is used for in-show advertising or as promotion for other programs on the channel.

**Aston band**  
Animated graphic played during the playback of primary video with effect of squeezing the video from bottom. This is used for in-show advertising or as promotion for other programs on the channel.

**PiP dynamic graphic**  
Picture-in-picture effect used to dynamically display images or promo videos.

**Credit squeeze**  
Animated graphic played during the credits of a program. This graphic effect squeezes the credits to a corner of the screen, while the rest of the screen is used to display animated graphics such as now/next/later, or for playing other video assets such as the commercials. While the screen can show two videos, audio can be from either asset or both.

**Live graphics**  
During live playout various graphics can be added using the schedule, the live controls on the web UI, or automated overlays.
Real-time text-based graphics

CLOUDPORT system accepts a dynamic graphic template and real-time text from RSS, Social media and SMS to support real-time graphics.

RSS
Text is pulled from a web feed to show live updates from an RSS media.

Social media
Text from social feeds such as a Twitter hashtag can be dynamically generated and displayed on screen at periodic intervals.

SMS
A text message sent to specific number can be automatically displayed on screen.

Ticker
A real-time banner that can be used to show real-time status of news or stocks.
# Graphics ingest

Amagi can ingest all prevalent graphic formats. Please refer to the table below for details on how each type of graphic can be ingested.

<table>
<thead>
<tr>
<th>Type of graphic</th>
<th>Ingest format</th>
<th>Ingest workflow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Static graphics / Animated sequences &amp; Time-based or independent graphics</td>
<td>.TGA files with Alpha or .MOV files with position provided in the metadata xml file.</td>
<td>TGA or MOV format graphics are ingested on Amagi cloud.</td>
</tr>
<tr>
<td>Advanced dynamic graphics</td>
<td>Adobe After Effects Project file with metadata information providing dynamic variable details required.</td>
<td>1. An ingest point. (Cloud storage / on-premises designated folder)</td>
</tr>
<tr>
<td>DVE squeeze</td>
<td>Adobe After Effects Project file with dynamic metadata for variables such as primary video, secondary video, audio, duration of videos, and text (if required).</td>
<td>2. Dynamic parameters from meta file in AEP are used to contextually overlay text or video as per the template</td>
</tr>
<tr>
<td>Real-time text-based graphics</td>
<td>TGA template, with font file, and real-time text coming from social media, RSS, or SMS.</td>
<td>3. Graphics are rendered as either TGA or TS files based on type of graphic. (Now/ next/later, L Band/ Aston band, Twitter feed etc)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Processed graphics are moved back to media processor</td>
</tr>
</tbody>
</table>

## How ingested files can be viewed on UI

![Example of rendered file](image)

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Quality checks during graphics processing

Once the assets are ingested CLOUDPORT system performs following checks:

- **Resolution mismatch**: Checks if the ingested resolution graphic matches the playout resolution.
- **Image transparency**: Checks if the background video is hidden due to the graphic.
- **Bounding box validation**: Detects if the graphic is inside the bounding box or not.
- **Total area validation**: Checks if the graphic occupies space within the threshold limit set for it. For example, if the threshold value of the graphic area set as 20% of the total area, and if the graphic covers more than 20% area, the QC validation will fail.

The graphics that successfully pass the QC and validity checks shows the status as ‘Uploaded’, and are now ready to be downloaded to the Playout Server for playout.

CLOUDPORT Web UI view of ingested graphics

Preview of ingested graphics can be seen here.
## Graphics scheduling

Amagi's web UI can be used to schedule all four types of graphics. Every graphic can be scheduled as dependent or independent graphic in the schedule. Dependent graphics can be managed with parameters such as 'Offset, and 'Duration', while the independent graphics can be managed with 'Start time' as well as 'Duration'.

The table given below provides an overview of methodology used to schedule each type of graphic.

<table>
<thead>
<tr>
<th>Type of graphic</th>
<th>Scheduling format</th>
<th>Scheduling workflow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animated sequences</td>
<td>Multiple formats supported including csv .xls, .xml, .txt .bxf, .osc</td>
<td>Graphics are scheduled as part of the main schedule using CLOUDPORT UI, or playlists can be dropped in UI and edited for scheduling. These can be dependent graphics.</td>
</tr>
<tr>
<td>Logo</td>
<td>TGA Sequence</td>
<td>1. Logos can be scheduled as 24*7 Channel logo</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Program specific logo</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Live logo</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Time-bound logo such as for duration of christmas</td>
</tr>
<tr>
<td>Advanced dynamic graphics</td>
<td>Adobe After Effects Project template. Following types of dynamic graphics can be scheduled.</td>
<td>1. The dynamic parameters of graphics such as upcoming programs can be picked up from the playlist itself.</td>
</tr>
<tr>
<td></td>
<td>• Now/Next/Later</td>
<td>2. For use cases such as back-in counter, the duration can be specified as a text string.</td>
</tr>
<tr>
<td></td>
<td>• Music album and artist information</td>
<td>3. For music albums, information about the songs can be pulled from database by customizing the scheduling system.</td>
</tr>
<tr>
<td></td>
<td>• Back-in counter</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Countdown counter</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PiP with text</td>
<td></td>
</tr>
<tr>
<td>DVE squeeze</td>
<td>Adobe After Effects project template. Following types of dynamic graphics can be scheduled.</td>
<td>Dynamic parameters such as primary video to be squeezed, and area for embedded video of picture are specified in the template. Other attributes such as audio to be played, speed of credits, and end of the squeeze with return to primary video can also be controlled.</td>
</tr>
<tr>
<td></td>
<td>• L-Band</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Aston band</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Credit squeeze</td>
<td></td>
</tr>
<tr>
<td>Real-time text-based graphics</td>
<td>Adobe After Effects project template with real-time text</td>
<td>An area for real-time text is defined in the template. The text can be entered by connecting to the social media or RSS feed.</td>
</tr>
</tbody>
</table>
Rule-based automated scheduling for graphics

CLOUDPORT facilitates automated scheduling of graphics where rules can be defined to place graphics as per the schedule requirements. The rules can be defined based on asset types like programs or commercials, the date and time of the asset schedule, and other properties like offset and duration window when a graphic should be displayed and when it should be automatically turned off.

For example: we can schedule a dynamic 'NOW and NEXT' bug in the first minute of the program while a 'LATER' bug can be scheduled one minute before the end of the program by creating automated rules. As Now and Next bug is a template based dynamic graphic, the template contains the placeholders like $NOW and $NEXT that get replaced with the actual asset names from the playlist before the graphic is displayed.
Conclusion

Amagi CLOUDPORT platform is the most versatile graphics playout platform with option of playing out static as well as dynamic graphics. CLOUDPORT can be used by channels of any size to automate graphics and enrich the channel experience.

Using CLOUDPORT’s advanced graphics capabilities, TV networks can achieve multi-layered graphics to provide the best visual experience to the viewers.

Also, the automated scheduling capabilities provided with the advanced graphics feature help the schedulers save significant amount of time and effort in graphic scheduling. Amagi CLOUDPORT’s web based unified management interface provides a seamless, simple and easy way to manage playlists and graphics schedule.