

NDS Progressive Download

Progressive Download, a unique NDS technology, enables users to cost-effectively download even bandwidth-heavy on-demand HD files over lowest bandwidth Internet without costly video servers. Subscribers can securely download files to DVRs and even zapper set-top-boxes equipped with USB storage devices.

With the introduction of hybrid broadcast/IP set-top boxes (STBs) and the improving broadband infrastructure, NDS has extended its on-demand solution to support Progressive Download (PDL) delivery which enables operators to leverage the Internet for offering on-demand content.

Progressive download provides a simple, cost effective way for operators to deliver content on-demand. There is no need for expensive, dedicated VOD servers or for guaranteeing “bandwidth per session” in order to meet demand at peak usage times. PDL therefore dramatically improves return on investment in cases where infrastructure upgrade for real-time streaming VOD would be significant or in regions with low subscriber density.

Progressive Download (PDL) allows downloads to take place without intervention, and automatically renews the connection and download even if it is interrupted once or multiple times.

NDS PDL is a comprehensive solution that includes following elements:

- Pre-encryption
- Metadata delivery
- Conditional access powered by NDS VideoGuard®
- On-demand catalogue
- NDS MediaHighway® set-top box software
- Full EPG integration
- Content management workflows

The solution also supports MPEG-2, H.264 SD and HD video in MPEG-2 TSP encapsulation (including subtitles, audio tracks and Dolby Digital).

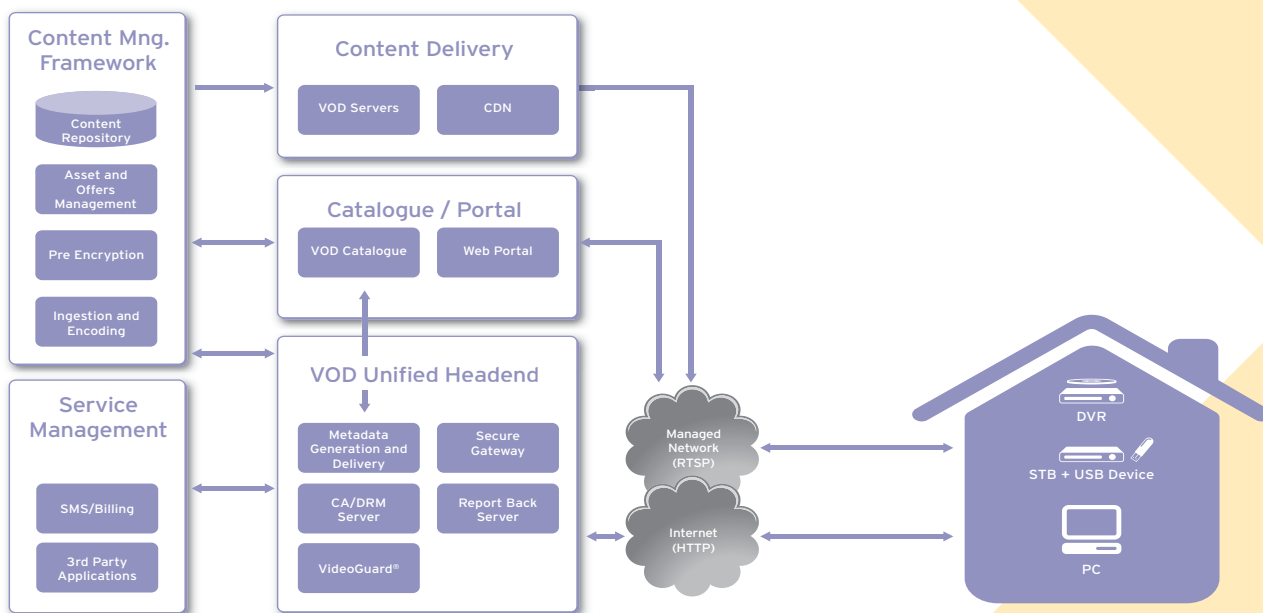
NDS PDL is unique because it enables operators to seamlessly combine on-demand and broadcast content into a single, compelling integrated service. Operators can also launch innovative and compelling services like Catch-Up TV, which gives viewers the option to watch a previously broadcast programme even if it was not recorded.

Powered by the NDS Unified Headend™

The underlying architecture for the NDS PDL solution is based on the NDS Unified Headend. This enables operators to centrally manage VOD delivery across multiple platforms using both progressive download and real time streaming to any IP device.



Progressive download architecture



Robust content protection

NDS PDL is powered by the industry-leading NDS VideoGuard® CA/DRM solution. With content being downloaded to the DVR's hard drive, operators can apply the same robust level of content protection that is used for regular broadcast content. The pre-encryption architecture ensures content is always encrypted, which is especially important when it is delivered "over the top" in an unmanaged network.

Integrated user experience

The NDS PDL solution provides an immediate streaming experience to the end-user across an adequate Internet connection. When there are less network resources available, the subscriber experiences a near on-demand experience.

In order to ensure smooth playback and hassle-free service, the NDS PDL solution ensures enough content is cached on the disk before it is available for playback. The user is provided with a progress bar and a notification when the content is ready to "Play as you download".

With enhanced features such as playback promos or adverts from the disk, operators can decrease the perceived waiting time. Once the content is fully downloaded to the disk it is automatically available on the personal DVR planner as a regular recorded content item.

Also available for zapper boxes

The NDS PDL solution is not restricted to just DVR boxes. Using NDS MediaHighway middleware, operators can expand their progressive download service to include STBs with no internal memory using a USB flash key or a USB connected external hard disk.

For more information about NDS' secure solutions, visit www.nds.com

secure □ enable □ interact

