



PRODUCT DETAILS

Seamless Discovery Premium

Bombarded with more options than ever, consumers can choose from multiple services and devices to view their favorite content, whether at home or on the go. Despite all this choice, consumers watch just a fraction of the content available to them. Due to increased competition coupled with more tech-savvy generations, it's time for change. Enter personalized content discovery, the answer to improving the consumer experience and increasing viewership.

TiVo's Seamless Discovery® Premium is revolutionizing the way video service providers deliver content to viewers, and ultimately the way consumers find something they want to watch. Guided by the belief that consumers should not have to work to find relevant content – the content should find them – TiVo provides the industry's most comprehensive personalized content discovery platform in Seamless Discovery Premium.

Seamless Discovery Premium's multi-dimensional approach to personalized content discovery includes search and recommendations, favorite series and sports, editorial and dynamic carousel creation and management, and more. This content discovery functionality can be deployed in a cross-catalog format including linear, premium channels, VOD, DVR and OTT content, on any device at any time.

Key differentiators include:

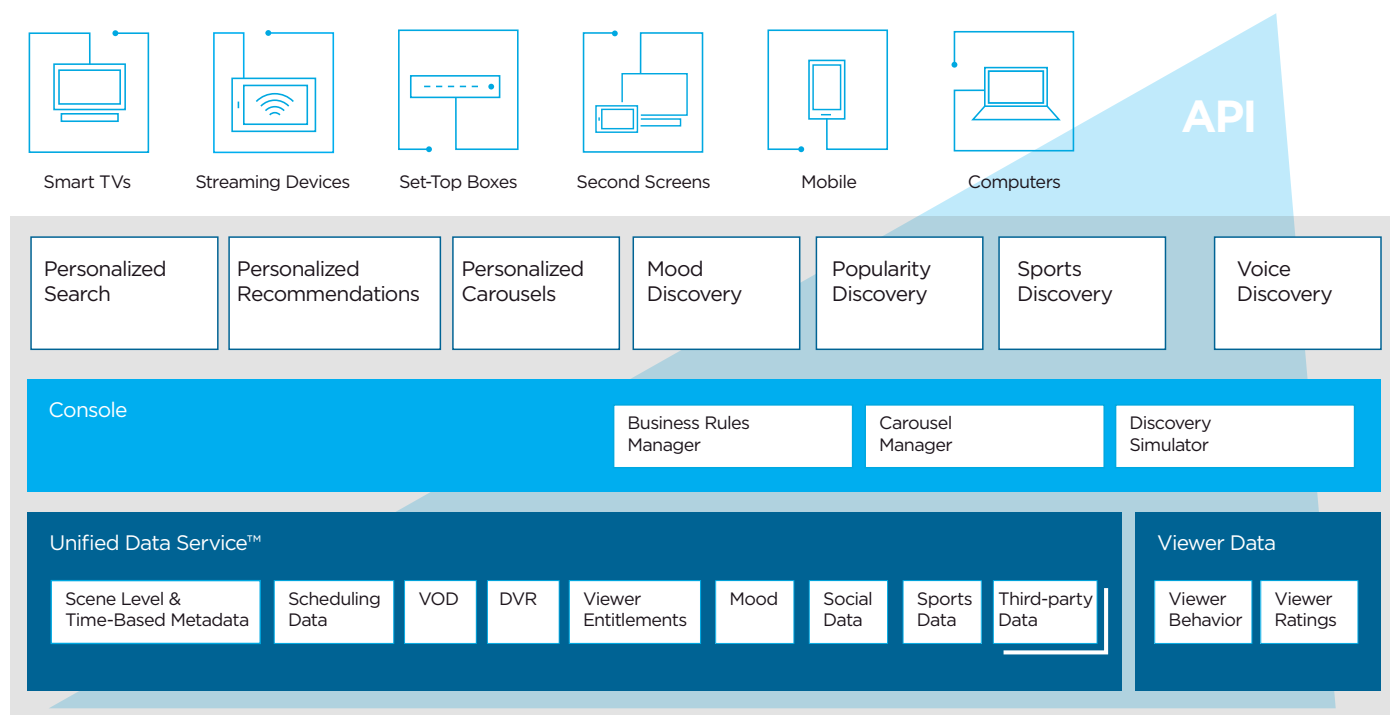


Integration of Business Needs

Seamless Discovery Premium's Console provides an additional layer of flexible customization to boost linear or revenue-generating content, such as premium channels or VOD titles; execute offer management programs; and deliver targeted promotions to different subsets of viewers. Seamless Discovery Premium not only improves the overall TV experience, but also incorporates the video service provider's business goals, creating new possibilities to enhance and monetize each content discovery experience.

Market Expertise and Operational Excellence

- The Seamless Discovery Premium platform processes **more than 3 billion monthly transactions and over 55 unique deployments**. Seamless Discovery proudly predicts with **95 percent accuracy** what a viewer will want to watch, and supports the uptime required for high-availability systems.
- **Seamless Discovery Premium customers** include AT&T U-verse, Bright House Networks, Charter Communications, The CW Network, DIRECTV, DISH Network, FOX Sports, Foxtel, Sharp, Time Warner, and Verizon FIOS.
- **Seamless Discovery won the 2014 Technology & Engineering Emmy® Award** for Personalized Recommendation Engines for Video Discovery for multichannel video programming distributors (MVPDs).
- **TiVo has empirically-demonstrated superior technology**, proven multiple times in rigorous customer lab environments against competitive solutions.



Data-Driven Decisions Through Reporting and Analytics

TiVo's compatible Seamless Insight product delivers the metrics, KPIs, and data-driven decisions necessary to empower video service providers to gain and increase viewers' trust. Video service providers gain real-time insight into engagement and overall performance of cross-platform content discovery implementations with reports and analytics tracking API availability, video views, searches, and recommendations by devices, products, time of day, and more. Now, through Seamless Insight, informed decisions and adjustments affecting content discovery efforts can be based on real data and insights.

UNIFIED DATA SERVICE

Delivering superior personalized search and recommendations requires hundreds of data sources, which include everything from the provider's proprietary metadata, to scheduling data and VOD catalogs, to explicit and implicit viewer behavioral data. When you multiply this by millions of viewers and combine it with the need to deliver personalized search results and recommendations within a sub-second time period, it's easy to see why data management is a significant pain point for video service providers.

TiVo's Unified Data Service creates a single index where multiple structured and unstructured video-related data sources are ingested, aggregated, reconciled and stored, providing a master collection of metadata. This capability offers MVPDs, consumer electronics manufacturers, digital publishers, and second-screen applications a deep video metadata library that increases the contextual data of each video asset.

Combine data from the Unified Data Service with viewer behavioral data, and Seamless Discovery Premium's data management capabilities provide a robust dataset, powering numerous types of personalized content discovery functionality including search, recommendations, popularity discovery, mood discovery, sports discovery, voice discovery and more. Unified Data Service has been architected to manage this ever-increasing set of big data pools including the following:

- Third-Party Mood Metadata
- Service Provider's Scheduling Data
- Service Provider's VOD Catalog Data
- Service Provider's Third-Party Data Sources
- Pre-Mapped Third-Party Data Sources – Unified Data Service is pre-mapped to key third-party industry sources to speed up implementations and spans a variety of functions, including:
 - Industry-Leading Linear Schedule Data
 - Industry-Leading VOD Catalog Data
 - Over-the-Top Data
 - Sports Data
 - Popularity Data
 - Critic Ratings & Reviews
 - Video Trailers

A word cloud of various data sources associated with TiVo's Unified Data Service. The words are arranged in a roughly circular shape, with some words being larger and more prominent than others. The colors of the words include blue, orange, green, and grey. The words include: EPG SCHEDULES, CRITIC REVIEWS, SUBSCRIPTION LEVEL, CONTENT IMAGES, HEADENDS, SOCIAL COMMENTS, GENRE, CAST, VOD CATALOGS, OTT CATALOGS, VIDEO TRAILERS, TV EVERYWHERE, SIMILAR TITLES, CRITIC RATINGS, EPISODIC DESCRIPTIONS, SCENE-LEVEL METADATA, RIGHTS ENTITLEMENT, and MOOD.

PERSONALIZED SEARCH

Powering results based on a viewer's preferences and behaviors, Seamless Discovery Premium takes search to a "personalized" level. Personalized search supports a variety of options and a wide range of filtering and faceting functionality.



AutoSuggest

In real-time, Seamless Discovery Premium monitors what the viewer types, and once the first characters of a word have been entered, a list of suggested titles is presented. Video service providers have the ability to limit results to pre-defined metadata fields or boost suggestions based on specific fields and "weights," providing yet another method to incorporate strategic business goals and offer management programs.

PERSONALIZED RECOMMENDATIONS

Personalized recommendations are powered by a combination of intelligent proprietary technology and numerous data sources, including video metadata, scheduling data and other third-party data sources. Seamless Discovery Premium can blend any combination of linear, DVR, VOD, PPV and OTT data to power recommendations. This is then paired with viewer ratings (explicit event data) and viewer behavioral data, such as viewing patterns, purchases, recordings, searches and favorites (implicit event data) to surface the most relevant content to each individual viewer. Seamless Discovery Premium also supports TV Everywhere environments by identifying, tracking and managing each viewer's behavior on set-top boxes, tablets, gaming consoles, mobile devices and any other connected device to deliver personalized recommendations accordingly.

Group Personalized Recommendations

In real-time, Seamless Discovery Premium combines multiple individual profiles to deliver personalized recommendations for a couple, a family, or any group of viewers.



Predictive Recommendations

Unlike Seamless Discovery Premium’s personalized recommendations, which blend similar content and previous viewing habits, predictive recommendations surface content based on repetitive daily, weekly, and monthly viewing, and then only provide recommendations of first-run TV shows and favorite teams/sporting events. This functionality predicts what a viewer will want to watch, ensuring content is found in a single click, channel surfing is avoided, and programs the viewer regularly watches are never missed.

Watch Now Recommendations

A smart blend of predictive recommendations and personalized recommendations, “Watch Now” recommendations recognize when there is new content available that might interest the viewer and present it first. If there is not a clear behavior pattern for that time of day and day of the week, then the viewer will be presented with recommendations that will help them find new content that they would be interested in by mixing unwatched series, movies, or live events. The smart blend incorporates content from all sources available for viewing at that time, whether it is being broadcast live, is available on demand, is from an OTT service, or is on the DVR.



Personalized Browsing

The average pay-TV subscriber only watches between eight and ten channels of their TV package, leading to dissatisfaction and disengagement with his or her service. Personalized browsing solves this by exposing the service provider’s linear programming content and surfacing it based on relevance to the viewer.

By combining this presentation of linear content with premium, VOD and OTT content, personalized browsing delivers a powerful cross-platform content discovery experience.

Viewer Favorites

Seamless Discovery Premium will learn and store a viewer’s favorite series, sporting event(s) or team(s) based on how frequently they are watched. This feature ensures a viewer will never miss a TV series or sporting event once a new program or new season becomes available.

More Like This

Seamless Discovery Premium provides “similar title” recommendations to a particular video asset. “More Like This” leverages asset-level metadata and viewer behavioral data to deliver the most relevant personalized recommendations.

PERSONALIZED CAROUSELS

When titles are grouped into carousels by viewer's favorite shows, genres, interests or even actors/directors, not only do consumers find something to watch faster, but video consumption is three times higher than non-personalized carousels. Seamless Discovery Premium provides a simple way to populate an entire screen of personalized carousels, whether editorially or dynamically created. Editors may create dozens of possible carousels, but only those most relevant to the viewer will be surfaced and videos in each carousel will be ordered to the viewer's preference. For example:



- A mother may receive TV dramas as her top carousel, while her daughter receives a carousel of animated cartoons.
- A father is offered a carousel of movies from the director Martin Scorsese, while mom is presented with Steven Spielberg movies.



Over a six-week period, the carousels powered by Seamless Discovery's personalized recommendations received click-through rates over three times higher than the manually curated carousels.

MOOD DISCOVERY

A viewer's mood often dictates the type of TV shows and/or movies they want to watch. Mood discovery is available with Seamless Discovery Premium and provides yet another method to discover content by isolating titles based on what the viewer is in the mood for at a particular time. Mood discovery is powered by hundreds of unique content classifications, which result in hundreds of thousands of potential combinations and preferences based on specific moods, settings, themes, eras, locations, and many other characteristics.



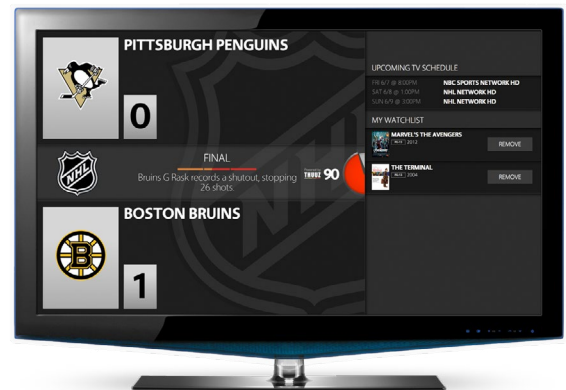
POPULARITY DISCOVERY

The overall popularity of a TV show or movie plays an extremely important role in consumers' entertainment decisions.

Popularity discovery uses real-time view data to surface the most buzzed-about content. This form of recommendations can be surfaced in a number of different time parameters, such as what was hot a week ago, what is hot on live TV now, or what upcoming content is trending. Popularity discovery gives video service providers a backup mechanism to personalization when cold-starting a new viewer.

SPORTS DISCOVERY

With more and more channels airing sports content, many of which are not the networks commonly searched by viewers, it is becoming increasingly difficult to find a favorite team or exciting games. Sports discovery surfaces a viewer's favorite teams and/or sporting events that were once hidden, reducing the time spent channel surfing.



VOICE DISCOVERY

Viewers can navigate the screen and search for programs to watch by simply speaking as they naturally would. Seamless Discovery Premium learns to respond based on a viewer's interactions with it, and personalizes the results shown. For example, they can ask what's on tonight; what channel a program is on or ask to switch right to it; ask to record a show airing that day; and more.

CONSOLE

Seamless Discovery Premium's Console provides the ability to incorporate a video service provider's specific business goals and requirements into its content discovery solution. The Console is managed through an intuitive, graphical user interface, which allows non-technical users to strategically control the results of each personalized content discovery application delivered to viewers.

This additional layer of customization also provides the necessary flexibility to boost revenue-generating content such as VOD titles, execute offer management programs, and deliver targeted promotions to different subsets of viewers, creating new possibilities for enhancing and monetizing each personalized content discovery experience. Features include:

Business Rules Manager

Business rules can boost or promote once-buried, revenue-generating content based on viewer preferences, subscription/entitlement levels, previous view events, geography, time of day/year, and countless other predefined or custom criteria. By adjusting the output of various content discovery applications, this functionality enables the execution of offer management programs and many other types of targeted promotions. Business rules can filter across all video content types including: linear programming, premium channels, VOD, and OTT content.



Editorial Carousel Manager

Video service providers can create editorially curated lists of content or playlists, which in turn can be used to power carousels promoting content based on business needs. These carousels can then be filtered, boosted, and sorted based on personalization. Within Console, an editorial carousel manager enables lists to be created through a simple drag-and-drop action and provides yet another method for video service providers to feature, enhance, and monetize the content discovery experience through strategic and targeted offer management programs. With the editorial carousel manager, providers can:

- Create lists to promote seasonal content, special events such as The Academy Awards, or live events such as presidential debates, news, etc.
- Increase VOD purchases by creating a list of \$2.99 movies or new releases
- Appeal to parents and kids by developing a list of popular or new kids movies

Dynamic Carousel Manager

Providing an automated method of creating carousels, Console's dynamic carousel manager allows video service providers to set parameters based on any number of content characteristics such as genre, keywords, author, release date and many other factors. Once these parameters are set, the carousel updates automatically when content is added or removed from the catalog and meets the defined criteria. Thus, carousels need to be created only once, reducing time spent managing and updating content. Carousels can be named within Console, providing a way to test different titles without requiring changes to client applications. With the dynamic carousel manager, providers can create lists based on:

- Genres, such as action movies or romantic comedies
- Actors or directors, such as movies featuring Tom Hanks or movies directed by Alfred Hitchcock
- Holidays, such as Christmas movies or Halloween horror films



Discovery Simulator

The Discovery Simulator is an easy-to-use feature that provides the ability to simulate all business rules and actions set within Console. This preview capability ensures any previously set business goals or requirements will be achieved prior to exposing an action in a production environment.

Use Case Management

Seamless Discovery Premium APIs are structured into what TiVo refers to as “taps” to simplify the setup and management of an environment’s content discovery use cases. Managed and controlled within Seamless Discovery Premium’s Console, each tap maps to a service provider’s use case, or content discovery feature, enabling advanced customization and organization of an implementation. Taps ensure a content discovery implementation aligns with the video service provider’s business goals, platform/device goals, UI goals and screen-level goals.

COLD START

Personalizing the pay-TV experience for new viewers is a key requirement for any video service provider; therefore, Seamless Discovery Premium offers a number of methods to engage new viewers. For example, in order to quickly build a profile, video service providers can explicitly offer intelligently varied content choices for viewers to rate. Alternatively, through business rules, Seamless Discovery Premium can blend other sources of data to provide suggestions while a viewer's profile is built through less explicit actions.

Seamless Discovery Premium continues to update this "new" profile in real-time as future implicit and explicit viewer events are captured, ensuring the most accurate personalized recommendations on an ongoing basis.

SAAS/SCALABILITY

Seamless Discovery Premium is delivered as a software as a service (SaaS), which simplifies deployments and reduces customer acquisition costs. The SaaS model does not require TiVo's customers to add hardware, software or bandwidth as their subscriber base grows.

Seamless Discovery Premium supports an unlimited number of simultaneous viewers from around the world. Using a distributed, cloud-enabled architecture, Seamless Discovery Premium scales to any required volume. With the highly distributed nature of Seamless Discovery Premium, there is no single point of failure in the platform, making it resistant to hardware failures or network connectivity issues and allowing additional capacity and server upgrades to be performed seamlessly with no downtime.