discovering | designing | delivering |

automation

Enterprise level automation for powerful multi-channel delivery

Pebble Automation is designed for enterprise level linear channel delivery through any network.

Broadcasters and service providers worldwide entrust the automation of their playout operations to Pebble, and with good reason. Our rigorous approach to understanding your workflows, our skill in designing bespoke systems, our drive for continuous improvement, and our focus on brilliantly delivering exceptional solutions make the decision to choose Pebble Automation a simple one.

Our enterprise Automation software platform delivers robust, best-in-class functionality at a scale that suits your operations and can flex and adapt as your needs change. A powerful centralised ingest, content management and multi-channel solution, it controls mission-critical operations at scores of broadcasters and service providers around the world and is scalable from one to hundreds of channels.

Working with you, we will design a solution to cater for your unique workflows. The Pebble Automation platform's distributed architecture enables you to utilise resources over multiple servers, and its extensive range of device drivers gives you the freedom to deploy the technology that best fits the needs of each of your channels, whether that's the legacy SDI devices which form an integral part of your channel playout, or the newest IP technologies as you add them to your facility.

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Pebble Automation delivers the power, flexibility and scalability to suit your operations, now and in the future.

Scalable from one to hundreds of channels and deployable on premise, in virtual machines and in the cloud, Pebble Automation offers exceptional system resiliency. New functionality can be added in and existing functionality modified seamlessly, making it ideal for today's rapidly changing media environment.

Control your best of breed, integrated channel, distributed and virtualised channels from a single UI.

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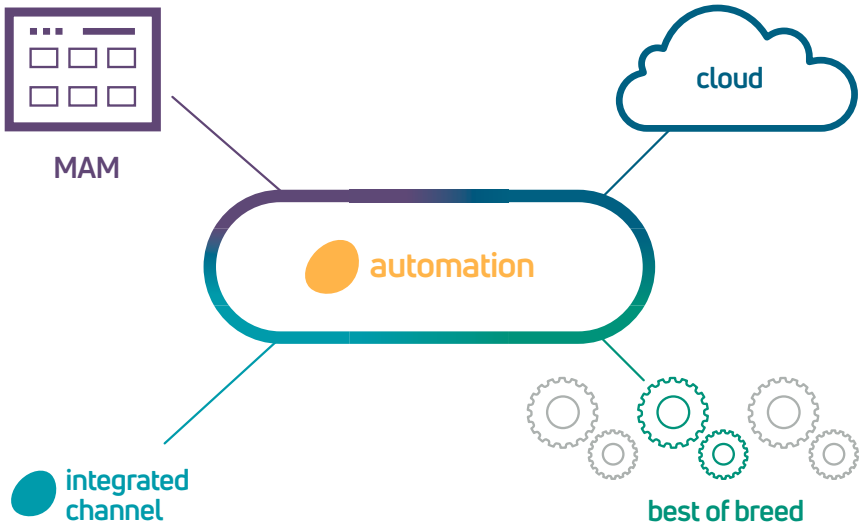

Media Aware

User Rights Management

A comprehensive administrators' toolset for managing and monitoring operator login, activities and audit trails is included.

Unicode Compliance

Operation in multiple languages including Chinese, Japanese and Arabic is available, right down to the metadata and database level. Multiple languages can be handled concurrently, and the entire system can be toggled instantly and completely back to English as required.

Full Audio Track and Multilingual Management

Multiple audio tracks are managed in association with a single stream of video, dynamically selecting the appropriate audio tracks on a per event basis to deliver multilingual services, audio description, audio according to target audience requirements, or audio mixing during voiceovers. Multi-channel audio (e.g., Dolby Digital) can be managed in line with the channel processing capabilities.

Media Aware

Database-driven media management functionality offers automatic caching, purging and conditional file movement, and allows the system to accommodate QC workflows and playout services. Advanced media caching can be driven by playlist schedules in the database before they are loaded into the transmission schedule. Close integration with your preferred MAM vendor is also available.

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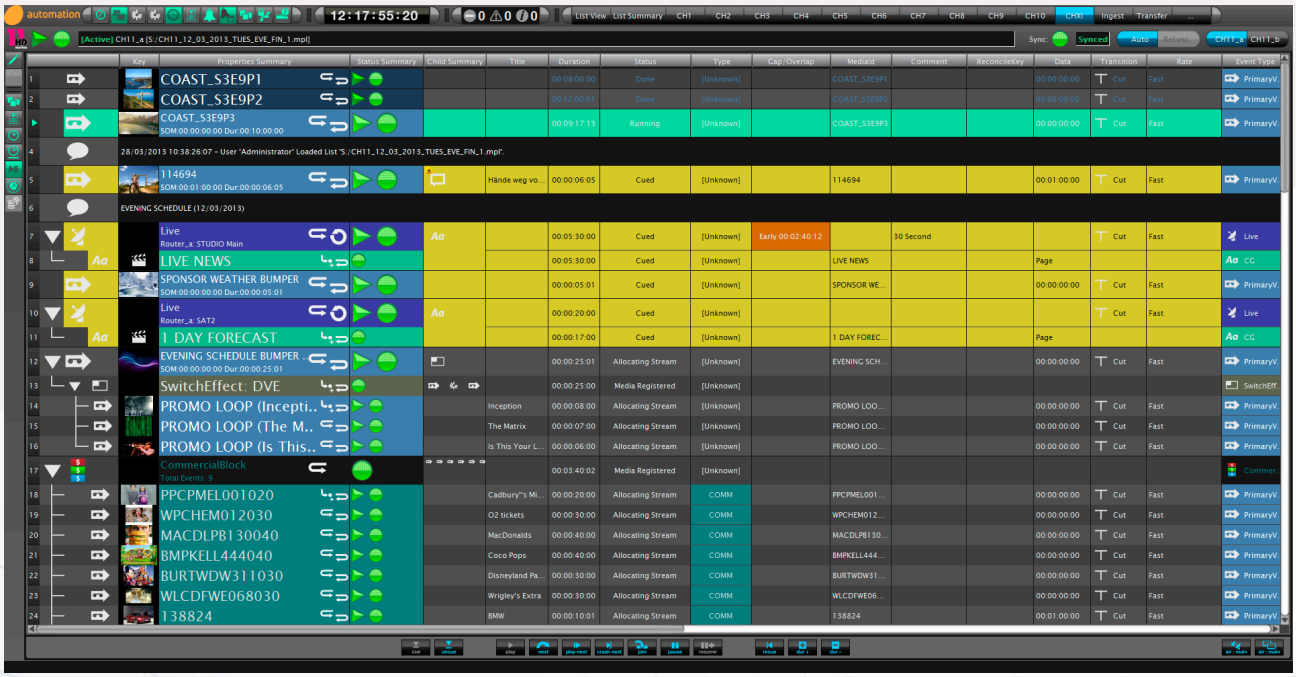
Operational benefits

Pebble Automation GUI



Pebble Remote

The user interface of Pebble Automation can be accessed directly from a client deployed in an on-premises deployment. Alternatively, remote control of multiple sites and multiple channels can be delivered via the Pebble remote interface. Made for cloud-based technology environments, **Pebble Remote** offers security, accessibility, and simplicity in complex channel playout environments.

Streamlined Operations

Pebble Automation's highly flexible and rich user interface can be optimised for individual and group accessibility, exception handling and resource access. This effectively improves service loading and workflow efficiency by simplifying the operator experience. Each operator can control a large number of channels, and desktop layouts can be customised to streamline operational practices and minimise errors.

Solution Flexibility

Using an extensive third-party product integration portfolio, the system is designed to deliver flawless control of a wide variety channel types in any combination. That can be for live and unpredictable content, regional opt-outs, simulcast, or simple clip-based channels. Operators are presented with a single unified user interface regardless of the underlying channel technology, minimising training, and maximising operational efficiencies, making this a market-leading solution.

Network advertising integration

Compatible with popular insertion splicing APIs, such as SCTE 30, 104 and 35, Pebble Automation is highly capable in FAST (Free Ad Supported TV) or other networks where regionalisation and opt-outs are commonplace or complex. With configurable management of traffic and list related messages, advertising efficiency and therefore CPM's (Cost per Mille) can be significantly improved.

Sophisticated Event Control

Groups of commonly used events, such as end of program sequences, can be grouped into a single object, simplifying the playout of multiple levels of secondary and even tertiary events. Evergreen content sequences can also be quickly dragged into the playlist.

Smart Panels

Customisation of Pebble Automation is possible using smart panels. These allow your own design of manual control panels to be added for tasks such as routing actions, control of secondary events, and monitoring of on-air sources.

Event Type Stats

For compliance with local regulations, it is often necessary to monitor airtime of types of events during specified time periods. Examples of this would include commercials during a typical viewing hour throughout the day. Channel operators can use these types of statistics for a 24 hour look ahead in schedules, flagging if any issues are forthcoming and enabling remedial actions in time.

Pebble Automation delivers a host of tools to safeguard the smooth playout of all channel types:

- **Summary Cell** – concise at-a-glance display of device and media status
- **Media Validation** – visibility of upstream media validation information where all elements are ready to play
- **Conditional Playout** – context-based playout rules where all playlists are linked with the database and immediate changes can be applied if media is embargoed.
- **Embedded Media Viewer** – high resolution content can be viewed directly in the UI so that content can be QC'd or timecode points allocated for segmentation
- **Join in Progress** – enables the schedule to be re-joined after an overrunning live event

Multichannel Control

System deployment, resilience, availability and serviceability

Deployable on-premises, on virtual machines or in the cloud

Pebble Automation can be deployed on-premises on dedicated off-the-shelf hardware or with virtual machines within private or public data centres. This enables the rapid spin up of temporary channels and sports event channels with control from remote sites or from a centralised on-premises network centre.

Distributed Modular Architecture

Architectural flexibility allows system designs that balance resource and operational requirements. The system's suite of capabilities is built using modular services blocks, providing customers the flexibility to optimise systems based on their logistics, operations, personnel, technological resources, and future business models.

Device Control

Pebble Automation is designed for optimal performance whether working with legacy third party devices, including the newest generation of multi-functional devices, or with hybrid combinations of both. With over 150 device drivers supported, interoperability is ensured. As third-party platforms add features and functionality, their control protocols become more complex and demanding with increased metadata handling and network-based close integration. Pebble Automation keeps pace with these dynamics to continually provide the most elegant and system-oriented solutions.

System Resilience

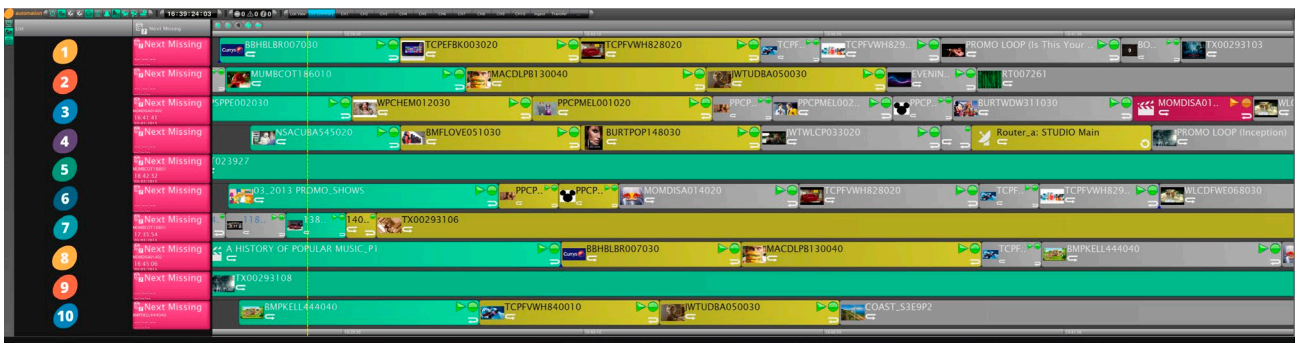
Pebble Automation's on-premises hardware and software have been designed to deliver high reliability, using software mirroring and network teaming to ensure robust on-air operations. The system supports a range of features to overcome underlying device failure, including Air Protect, playlist mirroring, redundancy of playlist, encoder and decoder, N+m redundancy and, SQL mirroring as well as automatic controller failover. Playout automation requires 99.999% availability and Pebble Automation is built around auto-recovery, system adaptation, and the ability to adapt to multiple operational contexts to provide maximum system resiliency, availability, and serviceability.

Cloud channels and disaster recovery capability

Pebble Automation is cloud deployable, as is Pebble Integrated Channel. These two components work seamlessly within public cloud providers' infrastructure and benefit from availability zone resilience, IaaS billing and very high scalability. Integration of Pebble Remote means that Pebble Automation can be easily managed in parallel with on-premises based 24/7 systems, whilst also operating in a public cloud. Ideal for disaster recovery or pop-up channels, this Pebble solution offers highly cost-effective flexibility for efficient operations.

IP and ST 2110 Solutions

Pebble Automation optimally manages compressed and uncompressed IP live media signals. As a comprehensive enterprise level solution, MPTS and SPTS embedded data is handled to allow network management for heavy duty tasks such as regionalisation or advertising insertion. When coupled with Pebble Integrated Channel, incoming and outgoing transport streams are intelligently managed through close API control directly from the automation system. Customers can also input NDI signals for a moderately compressed low latency stream. In the IP fully uncompressed domain, three methods of integration exist:



Timeline

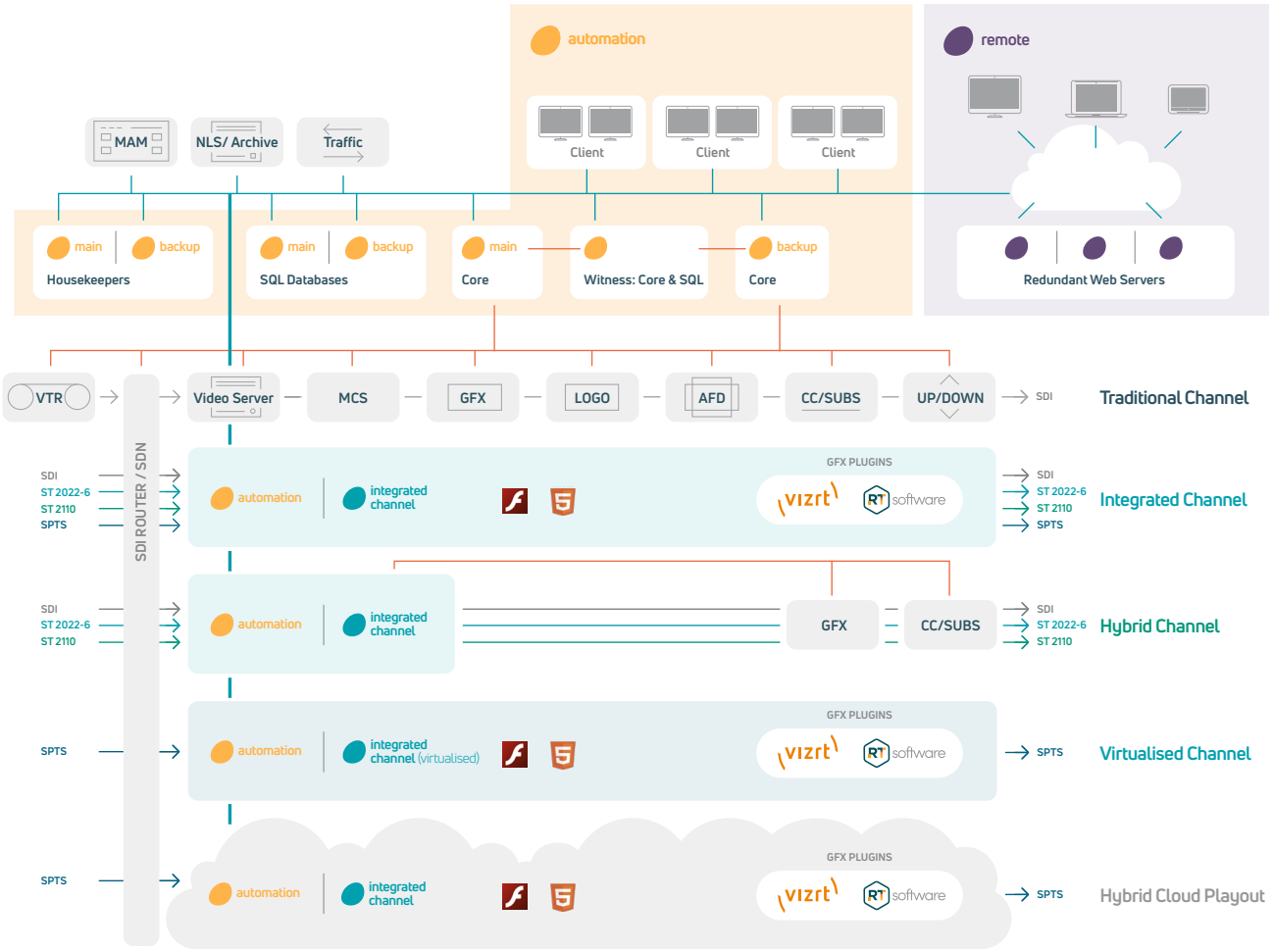
Pebble Control – Offers NMOS (Networked Media Open Specifications) based device discovery, registration, management and routing control as a tightly integrated part of the solution or as a standalone routing component.

Pebble Integrated Channel – Offers ST 2110 signal inputs and outputs directly where third party routing control systems can be used.

Pebble Orchestration – allows multi-step media and process step management via an easy to configure user interface. As part of your playout solution, Orchestration can also interface with AWS S3 buckets as well as via Server Message Block (SMB) to other storage types.

Software Interfaces and API's

Pebble Automation is built on software interfaces and API's. Several methods of software integration are provided including both Representational State Transfer (REST) and Simple Object Access Protocol (SOAP) processes. A multitude of software interfaces are available to systems and devices from many third-party suppliers. To gain more insight into the power available in integrating your own software with Pebble Automation please contact your nearest Pebble representative.



Being a Pebble Automation owner

Follow your path

Multiple development paths can be easily integrated once you are a Pebble Automation customer. Want to go IP but do not want to jump into uncharted waters? Need to go UHD for a new sports channel? Want to improve your cloud technology skills but so far have not deployed remote monitoring and control technology? Then Pebble is the solution for you – we do the heavy lifting, so you don't have to.

Linear Scaling Costs

Dedicated hardware, on-premises virtualised or cloud machines, clients, channels and multiple device deployments can be scaled independently of each other, with the necessary processing power added as required.

User Rights Management

Pebble Automation supports a system of user profiles that allows user privileges to be configured and managed centrally. Encompassing engineering, operator and view only privileges, these are simple to set up and can be specified on a per channel basis. Desktop layouts, UI preferences, device control and media management permissions are all customisable.

Maintainability and Support

Engineering user interfaces allow for simple system configuration by system administrators. With comprehensive error logging built in to enable the swift diagnosis of malfunctions across the system, technical staff can be alerted by alarm warnings and be kept informed of system status via a Simple Network Management Protocol. Remote login and support are delivered, enabling problems to be investigated remotely, and configuration changes to be effected easily.

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