



Hewlett Packard
Enterprise

Managed Hybrid Services with the HPE ProLiant EC200a Server

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Introduction

The HPE Easy Connect solution offers a hybrid IT approach that is the best of both worlds. It combines the benefits of local IT—with its local LAN performance and data secured behind an on-premises firewall—with the benefits of a cloud environment such as remote maintenance and scalable, flexible subscription services. The HPE Easy Connect solution features tightly integrated compute, storage, and networking, together with Zynstra virtualization and cloud management software. Hewlett Packard Enterprise has entered into an exclusive partnership with Zynstra to deliver the HPE ProLiant EC200a Managed Hybrid Server based on Zynstra's award-winning virtualization and cloud management software.

HPE designed the ProLiant EC200a specifically for small business, educational facilities, and branch offices. The solution delivers all your IT needs in one simple unique design that lets you maintain what is already working for you on-premises, while adding capabilities you need to succeed in today's competitive business environment. You can run applications natively on-site with all the data protection, security, and accessibility of an on-premises, private cloud, while running “cloud-appropriate” applications, such as backup, in the public cloud. All remotely managed by HPE and its best-in-class partners for an affordable subscription fee.

Today's small business owners have many IT and business challenges demanding their attention, including the following:

- Business functionality

All business owners need to ensure that they have the IT infrastructure they need to run their business, sell their products or services, support their customers, and provide their employees with effective business tools. And all businesses—no matter the size—need IT that is highly available, secure, and provides business continuity.

- IT lifecycle management

Keeping any IT infrastructure up to date with patches and software releases can be an immense challenge, given the numerous technologies an IT administrator has to comprehend—from networking to virtualization to firewall security and API integration, among others. Then there is the task of keeping hardware up to date, ensuring adequate growth with new hardware and end-of-life for older hardware platforms. These challenges may be magnified in a small business that is often constrained in IT resources and expertise.

- Limited IT resources

Especially for small and growing businesses, IT resources may quite often be limited, with only a few personnel resources, with limited time or expertise (or both), and limited capital to invest in new IT infrastructure.

Many businesses are moving to cloud infrastructures to solve these issues. However, while the benefits of moving to a public cloud include flexible resources and agile service delivery, there are also benefits to staying with a local IT solution, including direct control over data security, privacy, and user authentication. **Table 1** summarizes some of the benefits and drawbacks of housing IT locally versus moving to a cloud environment.

Table 1. Local IT versus public cloud IT.

	LOCAL IT	CLOUD (PUBLIC) IT
Benefits	<ul style="list-style-type: none"> • LAN Performance • Complete Control • Data Behind-the Firewall 	<ul style="list-style-type: none"> • Remote Maintenance • Subscription Pricing • No End-of-Life
Drawbacks	<ul style="list-style-type: none"> • Build and Maintain • Up-front Investment • Rip and Replace 	<ul style="list-style-type: none"> • WAN Performance • Loss of Control • Data Sovereignty

Technology software partnership

Zynstra is an innovative software company formed by experienced technologists and business entrepreneurs. The company has a strong record of creating enterprise-grade software, running inside some of the most complex and rigorous IT organizations in the world. Zynstra's experience with hybrid IT as a service brings the benefits of hyperconvergence to small and medium businesses, reliably and easily. Zynstra was awarded "Most Innovative SMB Cloud Solution" at the 2014 UK Cloud Awards and was the winner of the 2015 IT Industry Awards for "Infrastructure Innovation of the Year."¹



Overview of HPE ProLiant Easy Connect architecture

As illustrated in **Figure 1**, the HPE ProLiant Easy Connect solution consists of the following functional components:

- HPE ProLiant EC200a managed hybrid server—deployed on-site, offering a complete compute, storage, networking, and virtualization platform. All the core IT software needed to run your business, such as file and print services, firewall security, Active Directory, and domain control, is pre-configured and ready to deploy at your site.
- Cloud services that are tightly integrated with the solution platform, such as Microsoft® Office 365 for business needs and optional cloud-based backup and disaster recovery.
- Complete remote management, monitoring, and tuning to keep your integrated system—server hardware and software—secure, up-to-date, and operating at peak performance through its Keep Current Service, delivered by your managed service provider. Managed service providers have access to comprehensive management console capabilities via secure remote access. Another management console is available for local IT administrators with the subset of information you might want to manage in-house.

All these components, from hardware to software to managed services, are included in a predictable monthly subscription fee that lets small business owners plan more effectively and avoid the need for capital expenditures.

¹ Zynstra named Most Innovative Product of the Year for SMB's," UK Cloud Awards, 28 February 2014

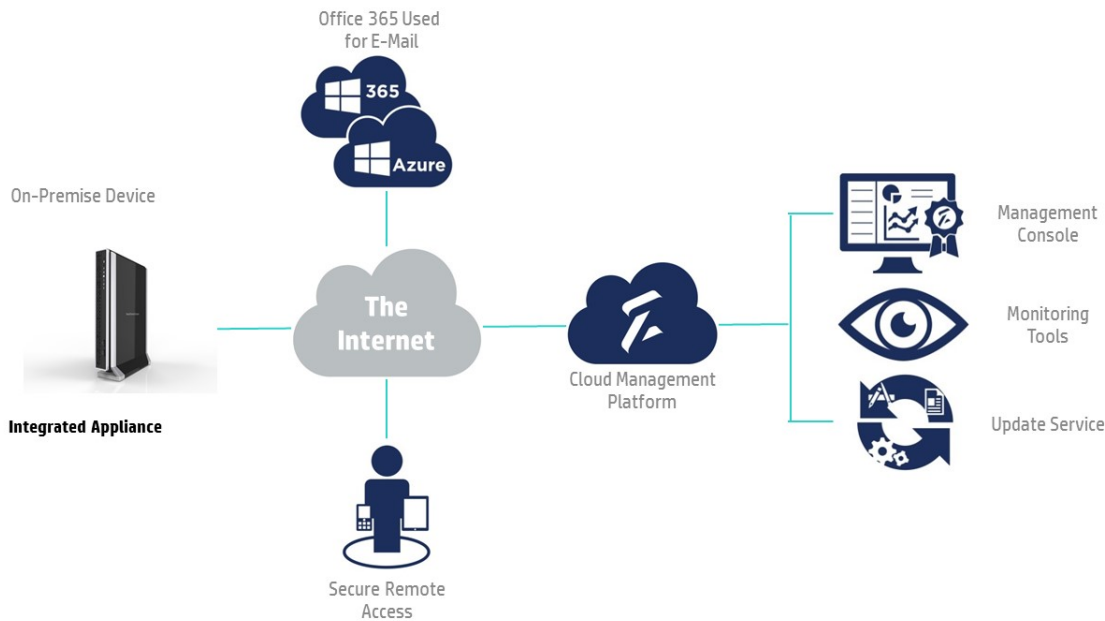


Figure 1. Key components of the HPE Easy Connect Solution.

ProLiant EC200a managed hybrid server

The foundation for the HPE Easy Connect solution is the solution platform that brings the quality and robust capabilities of ProLiant server hardware to small businesses, remote branch sites, and educational environments. Our engineers designed the ProLiant EC200a server to deliver core IT functions for 5–50 end users in a small business environment or up to approximately 300 students in an educational environment.

Solution platform

HPE designed the ProLiant EC200a server from the ground up as a tightly integrated compute, storage, networking, and virtualization platform. Its unique design and extremely small form factor (**Figure 2**) let you easily set it on an office desk or mount it in a wall. In fact, the chassis size is only 10 inches x 10 inches x 1.85 inches, a form factor that is similar in size to a set-top box.



Figure 2. HPE ProLiant EC200a server platform compares to the size of a set-top box.

The compute core uses the Intel® Xeon® D-1518 processor, which is designed as a “system on a chip (SOC),” including an integrated USB and SATA controller. The Xeon D processor family uses Intel’s newest 14 nm silicon technology and includes important reliability, availability, and serviceability (RAS) features for the server market that have not been available on the Xeon E3 processor.

The ProLiant EC200a includes components necessary for a robust server such as DDR4 error checking and correcting (ECC) memory and a resilient disk array with built-in RAID mirroring. The base SKU comes with 2 LFF (x2 TB) HDDs and an optional expansion box that adds 4 more LFF (x2 TB) drives, for a total of 12 TB of raw disk space, or 6 TB of mirrored data. The premium SKU comes with two 4 TB drives and four 4 TB HDDs on the optional expansion unit, for a total of 24 TB of raw disk space, or 12 TB of mirrored data.

The server architecture includes an M.2 solid-state drive (SSD) (128 GB standard, up to 256 GB) that is used as a read/write cache to improve performance.

It includes a total of three 1 GbE networking ports:

- WAN access to the Internet
- LAN capability to connect the rest of your office to the appliance
- Dedicated iLO management NIC

If you have a small business with several sites, an appliance can be configured at each location and seamlessly deployed within a secure multi-site private network. The network can use either standard internet routing or multiprotocol label switching (MPLS).

An external 120 W AC adapter provides power at efficiencies up to 89%. When the appliance is configured with the expansion box, it uses a 180 W AC adapter with similar efficiencies.

Table 2. HPE ProLiant EC200a server features.

SUBSYSTEMS	DESCRIPTION
Compute	Intel® Xeon® D-1518, 4 Cores
Memory	Memory (2) DDR4, up to 2133 MHz (64 GB max)
Networking	2x1 GbE embedded, 1x 1 GbE dedicated iLO NIC
VGA/Serial/USB/SD Ports	1 VGA, 3 USB (USB3.0/2.0), 1 USB (USB2.0)
Storage	2 LFF standard SATA Gen3 HDD Intel Integrated SATA controller
SSD Cache	Memory cache up to 256 GB SSD (M.2 NVMe PCIe SSD)
Optional expansion box	4x LFF–Standard SATA Gen3 HDD
Power and Cooling	120 W or 180 W external AC adapter, up to 89% efficiency Lot3 and Energy Star 5.0 compliance
Chassis Depth	10 inches x 10 inches x 1.85 inches
Warranty	3–3–3 warranty (3 -year parts, 3-year labor and 3-year onsite service)

At initial release, the HPE Easy Connect solution ships as a single server. Future releases will allow customers to select the Easy Connect solution in a dual-node cluster configuration to provide high availability and redundancy on-premises.

Virtualization layer

The ProLiant EC200a platform delivers the compute, storage, and networking resources as infrastructure-as-a-service virtual machines (IaaS VMs), letting you host your business-specific, on-premises applications in a private or hybrid cloud for flexibility and accessibility. The virtualization layer can provide either Linux or Windows Server VMs (requires Windows Server licenses, which are included in the monthly subscription pricing). Typically, HPE expects businesses to use approximately 3–5 VMs per appliance.

You can choose how to configure and allocate the hardware for each VM, depending on your business application needs.

Software layers

There are essentially three types of software and applications integrated onto the appliance.

- Core IT functions
- Curated third-party applications
- Local applications

Core IT functions

HPE and its partners will pre-install and configure the Easy Connect EC200a solution with the core IT functions and security required by every office or remote site, such as file and print services, firewall security, Active Directory and domain control to manage users. These core IT functions are completely monitored and managed through the HPE Easy Connect services, as described in more detail in the Remote monitoring and management section.

- File and print server—Provides resilient user file storage and group file sharing on high-performance disk arrays. Printer sharing also allows straightforward access to local network printers for all end users.
- Firewall and network gateway—An International Computer Security Association (ICSA)-certified firewall to the Internet that protects applications behind it (LAN-side applications), data, and user identities. The network gateway includes next-generation firewall, web-filter, anti-virus, and spam blocking.
 - Domain name system (DNS) and dynamic host configuration protocol (DHCP) services to manage all the IP devices on your office network easily.
 - IPsec to connect multiple sites securely on the public Internet and to secure packet transmission across the public Internet.
 - Web proxy and cache
 - Content and web filtering that enables blocking of inappropriate content in real time. The URL categorization engine lets you block websites in over 140 different categories.
 - Anti-virus and anti-spam that automatically scans HTTP, FTP, and SMTP traffic.
- Active Directory—Industry-standard user-credential management to manage users, passwords, group settings, etc., for local authentication. The Active Directory functions integrate with the cloud services (such as Office 365) to provide users with single sign-on capabilities.
- Virtual private network (VPN)—Provides secure remote access for users and IT administrators (refer to Remote monitoring and management section).

Curated third-party applications

Small businesses can request optional third-party applications, such as Microsoft Remote Desktop Services (RDS), to be installed as part of the pre-configuration process. HPE and its service provider partners will deploy, monitor, and manage the third-party applications just as they monitor the core IT functions.

As an example, Microsoft RDS can be provided as part of the subscription service, ready for your users' desktop applications. The RDS servers are fully monitored and kept current by HPE and its partners. Your local IT team or IT services partner manages the desktop configuration and contents.

Local applications

A typical SMB might have applications that need to be kept in-house behind the firewall, such as the following:

- Customer relationship management (CRM)
- Enterprise resource planning (ERP)
- Finance
- HR
- Media creation

- CAD/CAM
- Telephony services

While the other two types of apps (core IT functions and third-party apps) are pre-configured and managed as a function of the HPE Easy Connect Services through a managed service provider, small businesses deploy and manage these local apps themselves in the pre-configured VMs.

Pre-integrated cloud services

The HPE ProLiant EC200a server pre-integrates with popular software-as-a-service (SaaS) products running in the cloud, including Microsoft Office 365 and cloud backup and disaster recovery service.

As already mentioned, the Office 365 integration lets businesses share logon credentials and passwords, enabling a single sign-on solution for end users.

If you request the optional cloud backup and disaster recovery capabilities, HPE and its partners will enable access to all your data and applications in the cloud while the physical server is restored after a disaster. After the physical server is back up and running, your HPE managed services provider will restore it all to your physical server. All data is encrypted before it leaves your network, including the user and application files.

Remote monitoring and management

The complete remote management and monitoring of the appliance is one of the critical aspects of the cloud management platform provided by HPE and Zynstra's Cloud Management Service within the Easy Connect solution. HPE and its partners provide complete management services in the form of user management and authentication, remote management console capabilities, remote access via a secure VPN, and a comprehensive service that monitors every server appliance to keep it current.

HPE and its partners use their patented cloud-based technology to monitor the health of every appliance continually and to respond to alerts, providing a self-healing architecture. This involves checking its hardware, software, security functions, service performance, and backup capabilities. There are over 200 monitoring tests running every 5 minutes, ranging from testing high-level, experienced-focused outcomes to extremely low-level details, for example:

- Verifying that the latest software patches are downloaded for all pre-integrated services, core IT functions, and managed third-party applications, that all are compatible, and that all are updated within an acceptable time.
- Verifying all security patches are up-to-date.
- Automatically delivering and confirming updates, whether they are for software applications, operating systems, or security capabilities.
- Running verification tests to ensure that the security systems such as virus blockers function properly.
- Simulating end user tests or simulating actual events to make sure that the system responds properly to those, for example, ensuring accessibility to external websites:
 - WAN function testing.
 - DNS server testing.
- Automatically discovering and attempting to fix operational faults within VMs.

Unlike a normal server that might miss one of these problems until functionality is lost or a component has failed, the Easy Connect solution can identify problems before they start, restarting components as necessary, and providing a "self-healing" architecture.

The HPE Easy Connect solution provides significantly more sophisticated monitoring and management techniques than most organization's in-house procedures. As a result, your organization can be confident that software is always compatible and always compliant with the latest security practices. In addition, the HPE Easy Connect solution provides comprehensive testing and rollout of updates and seamlessly handles any

required rollbacks. Because it is a service, you don't have to perform server or software refreshes yourself—HPE and its partners are responsible for the following:

- All the core IT
- Any optional IT services such as disaster recovery
- Monitoring, management, and optimization for the solution

The end customer or managed service provider is responsible for custom payloads in the VMs and RDS desktops.

Compared to performing the same functions using a traditional IT solution with off-the-shelf products, perpetual software licenses, SaaS subscriptions, and typical IT staff, this solution reduces your server administration effort by approximately 90%.

Management consoles

The Easy Connect solution provides two secure, web-based management consoles, one for your IT managed services partner and another for your organization's local IT staff, which provide easy access to all health monitoring.

Figure 3 shows an example of the remote management console used by managed service providers to manage a number of appliances, from an entire set of end users and customers.

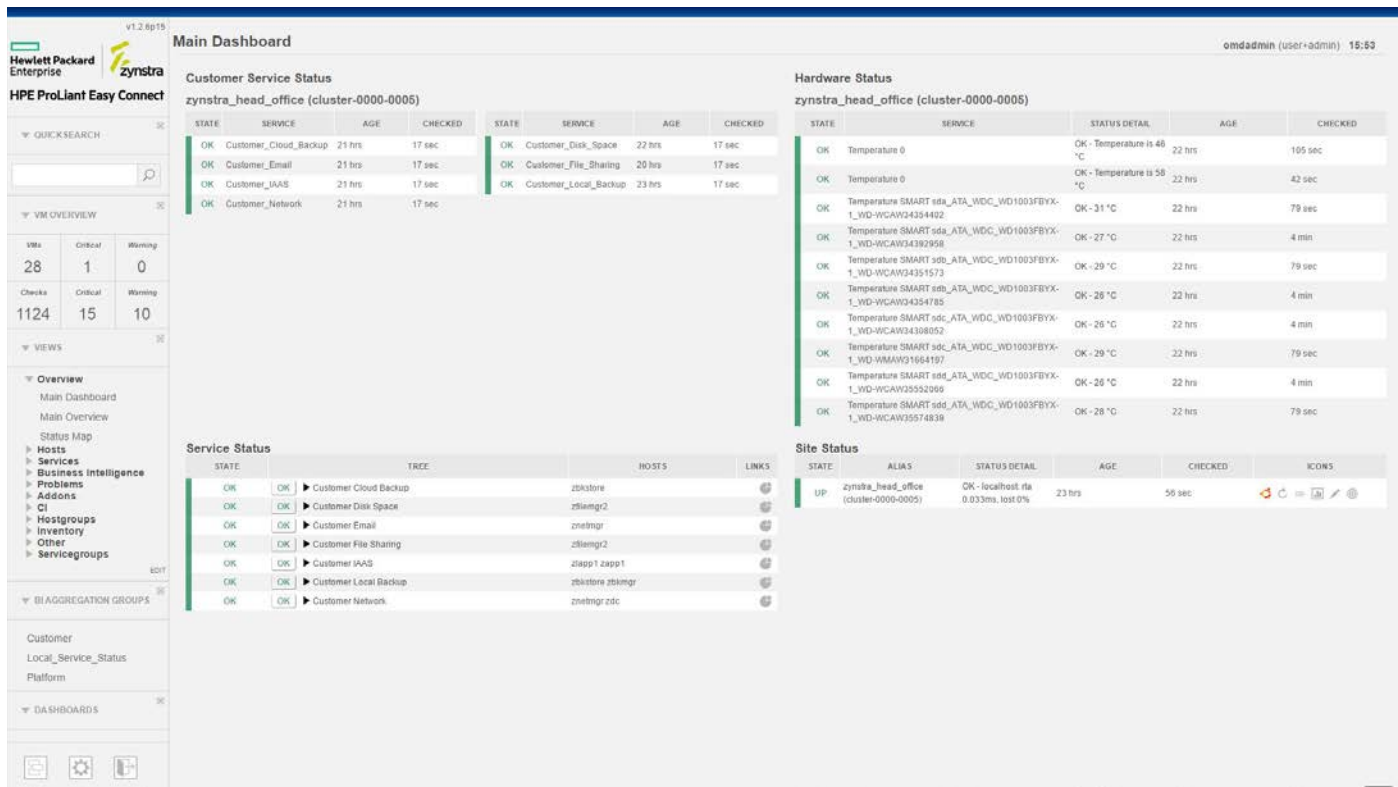


Figure 3. HPE Easy Connect remote web console for service providers.

Figure 4 shows an example of the remote management console for your organization's IT. Your administrator or super-user can use this console to view the state of the on-premises appliance, verify the appliance is passing all monitoring tests, verify file space allocation on the server, etc. All from any location, using a secure VPN connection into the appliance.

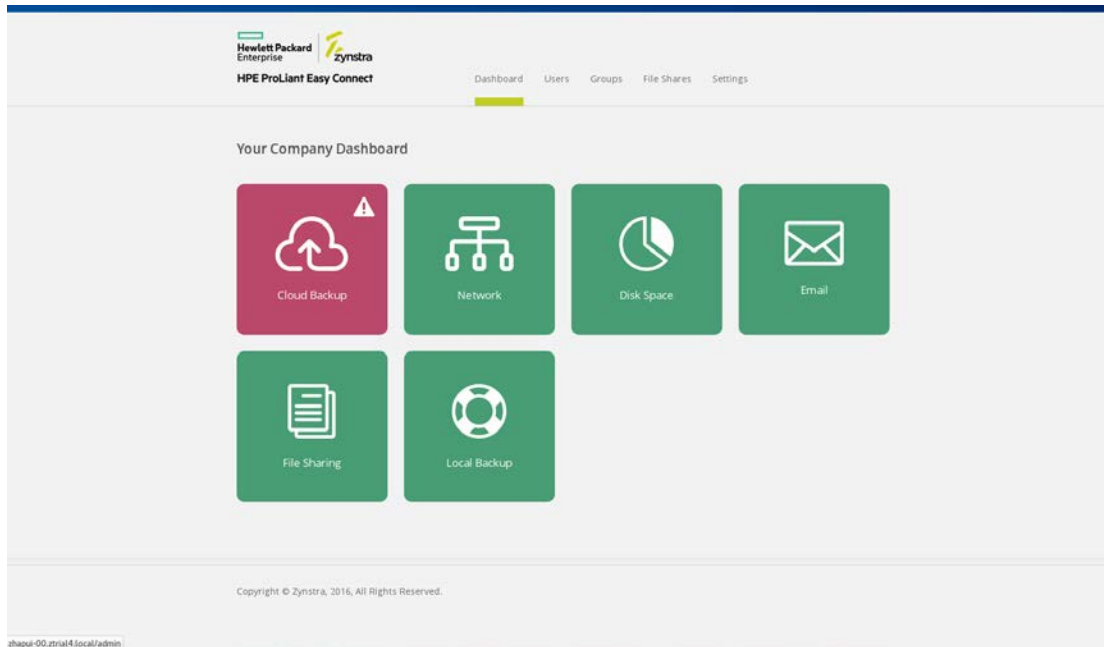


Figure 4. HPE Easy Connect remote web console for local IT.

Deployment and provisioning

The ProLiant EC200a server comes as pre-configured hardware and is pre-staged with software and services. Within a few hours of delivery, the server appliance can be functioning and ready to support your business.

In general, the process follows these simple steps:

1. After you order the ProLiant EC200a server, HPE or one of its managed service providers verifies the pre-deployment configuration.
2. After the server arrives at your facility, physically connect the server to the WAN/Internet connection and begin the configuration steps.
3. Software installation begins automatically.
4. The server reboots, finalizes some configuration tasks, and starts up its services.

The ProLiant EC200a server is now up and running, ready for you to start creating or importing user settings in Active Directory, importing user files, and installing your applications into the waiting VMs.

Conclusion

The diversity of the HPE ProLiant server portfolio enables a variety of on-premises, cloud-based, and hybrid IT solutions for every phase of business growth. The HPE ProLiant EC200a server provides an end-to-end turnkey solution for cloud-managed “IT in a box.” It offers comprehensive deployment, provisioning, monitoring and management of hardware, software, and services capabilities that are simply unavailable from off-the-shelf servers, do-it-yourself solutions, or proprietary enterprise solutions.

From an architecture perspective, it offers the best of both worlds, by having your server, storage, and software stack reside securely onsite, along with as much of your data as you choose. But it also integrates seamlessly with cloud applications such as backup. The HPE ProLiant EC200a server is a cloud-managed server that delivers all the IT you need in one simple unique design, enabling customers to scale on-demand, delivering advanced capabilities without complexity, all managed and kept current via the cloud, at an affordable monthly fee.

The HPE ProLiant EC200a server is ideal for small businesses (5–50 end users) with the following needs:

- Core IT server functions including user authentication, file storage, printer sharing, and network security
- Local and cloud back-up requirements
- Advanced firewall and security requirements
- Secure, seamless cloud services access for applications such as Microsoft Office 365

The HPE ProLiant EC200a server is easy to deploy, providing plug-and-play simplicity for the local IT staff. The managed service provider continuously monitors and maintains the server, so that local IT administrators do not need to routinely manage or manually patch the system. The level of monitoring and management sophistication provided by the HPE Easy Connect solution is unmatched and is readily available as your “IT as a service” solution.

Resources, contacts, or additional links

HPE ProLiant EC200a information
hpe.com/servers/ec200a

Zynstra
zynstra.com

HPE Servers technical white papers
hpe.com/docs/servertchnology

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