Maximise Uptime in a Production Environment

Modernising with virtualisation using the Stratus ftServer

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Business Consequences of Unplanned Downtime

2-5% of lost production in petro-chemicals

~$10,000/hr for a 2000 hp natural gas compression station

~10X the cost for unplanned events vs. planned maintenance in process industries

5-10% Increased inventories and labor costs, delayed delivery, reduced profitability in manufacturing

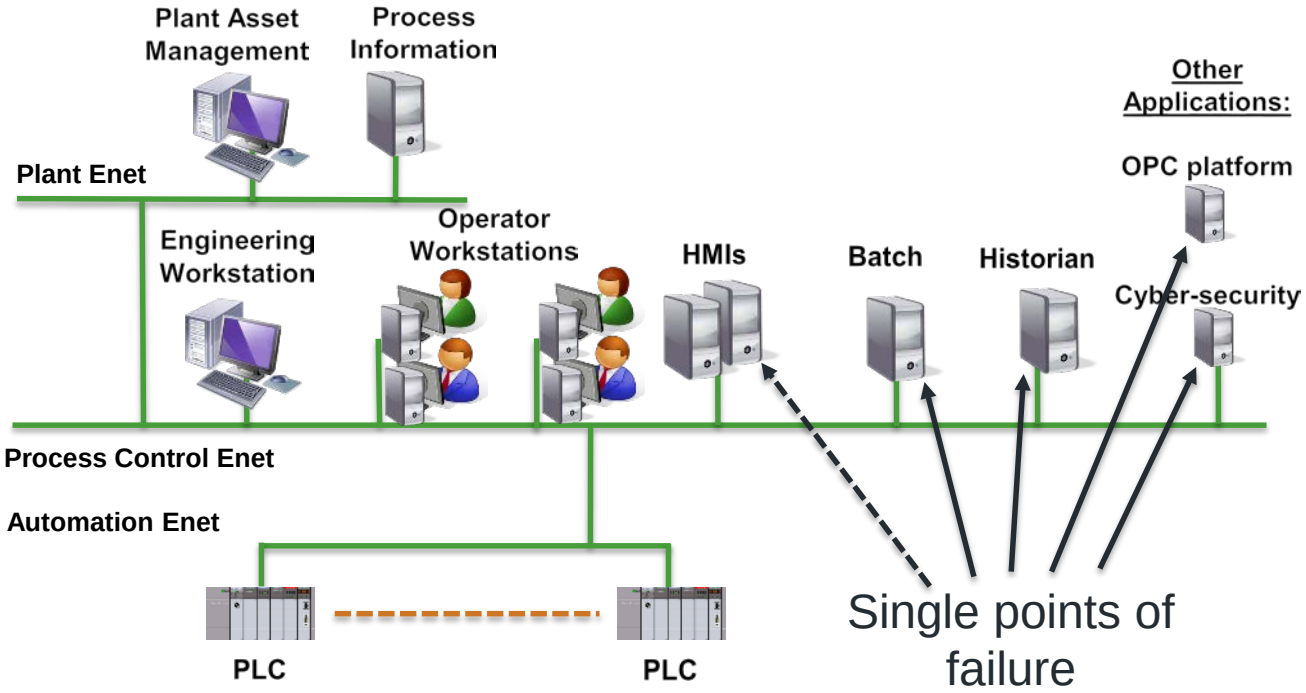
What is High Availability?




Availability normally measured as a percentage

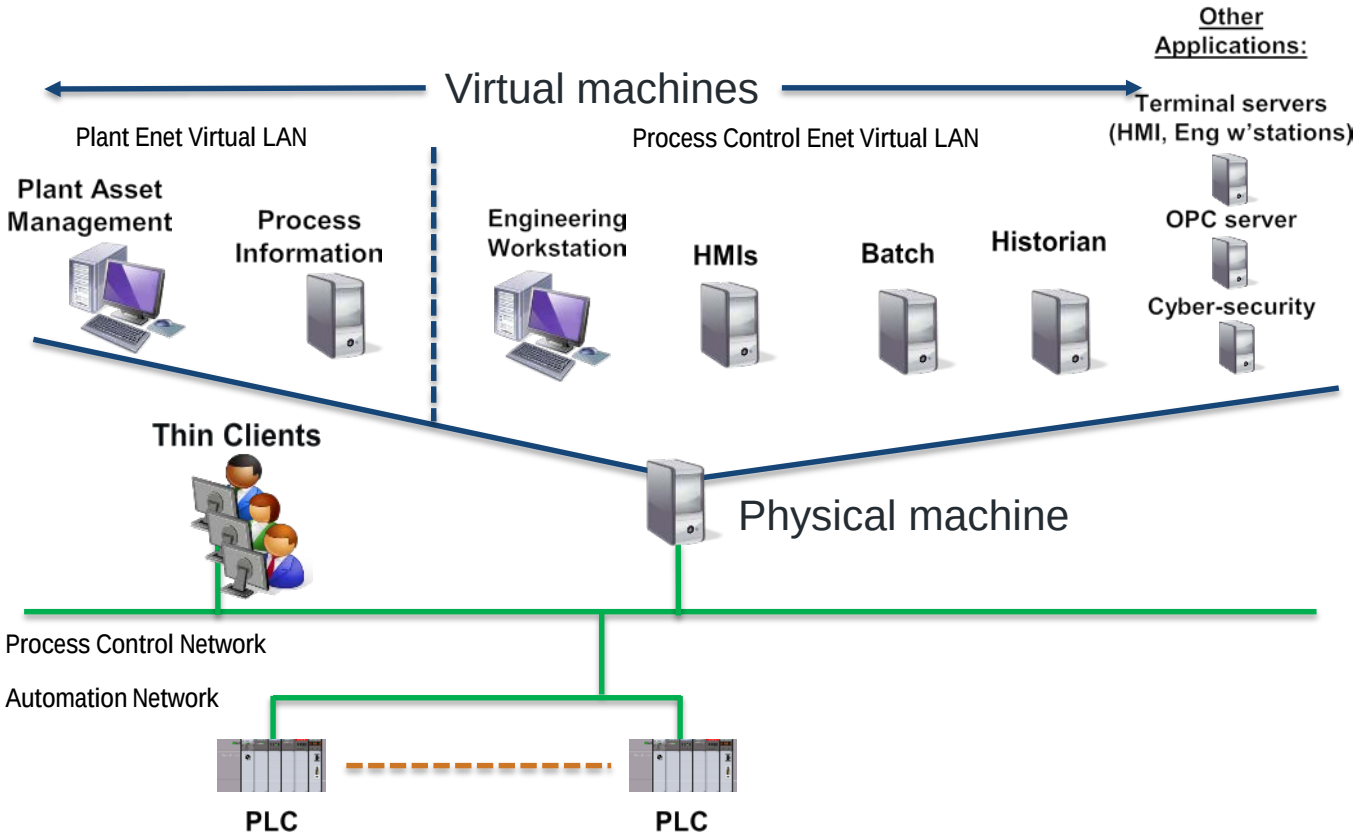
99%	315,360 sec/yr.	87.6 hrs/yr or 3.6 days
99.9%	31,536 sec/yr.	8.76 hrs/yr
99.99%	3,154 sec/yr.	52.5 min/yr
99.999%	315 sec/yr.	5.2 min/yr
99.9999%	32 sec/yr.	32 sec/yr

Challenges With Traditional Automation Environments



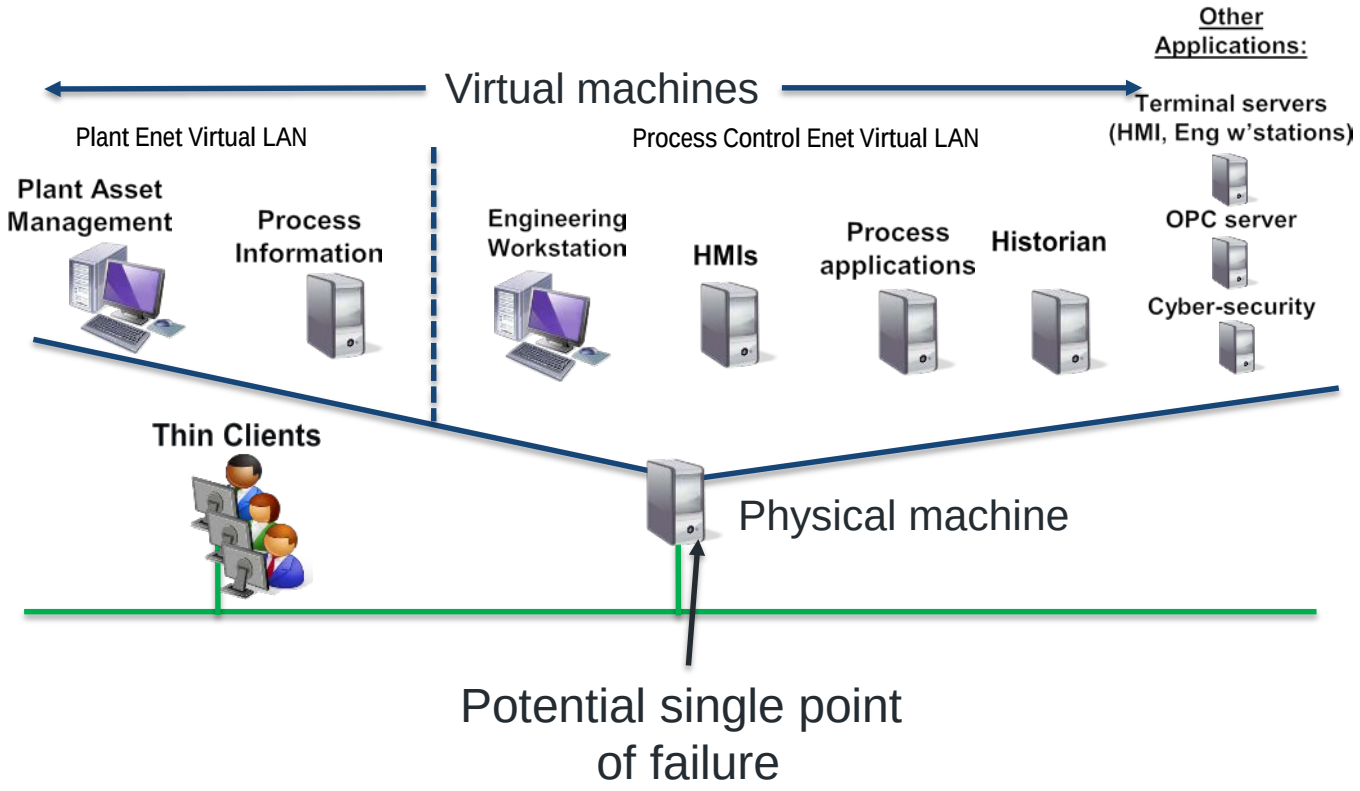
- Lack of system utilisation due to one application per server
- Complex management & configuration
- Keeping up with the multitude of security & patch updates
- Time consuming server failure recovery
- Low server/PC utilization
- Resource (FTE) investment

Applying Virtualisation



- Fewer servers are required
- Efficient use of compute capacity (maximising server utilization)
- Simpler environment to manage
- Easy re-start of failed applications
- Simple provisioning of additional virtual servers
- Test environment can run on the same server hardware platform
- Expanded disaster recovery options

The Weakness Of Virtualization

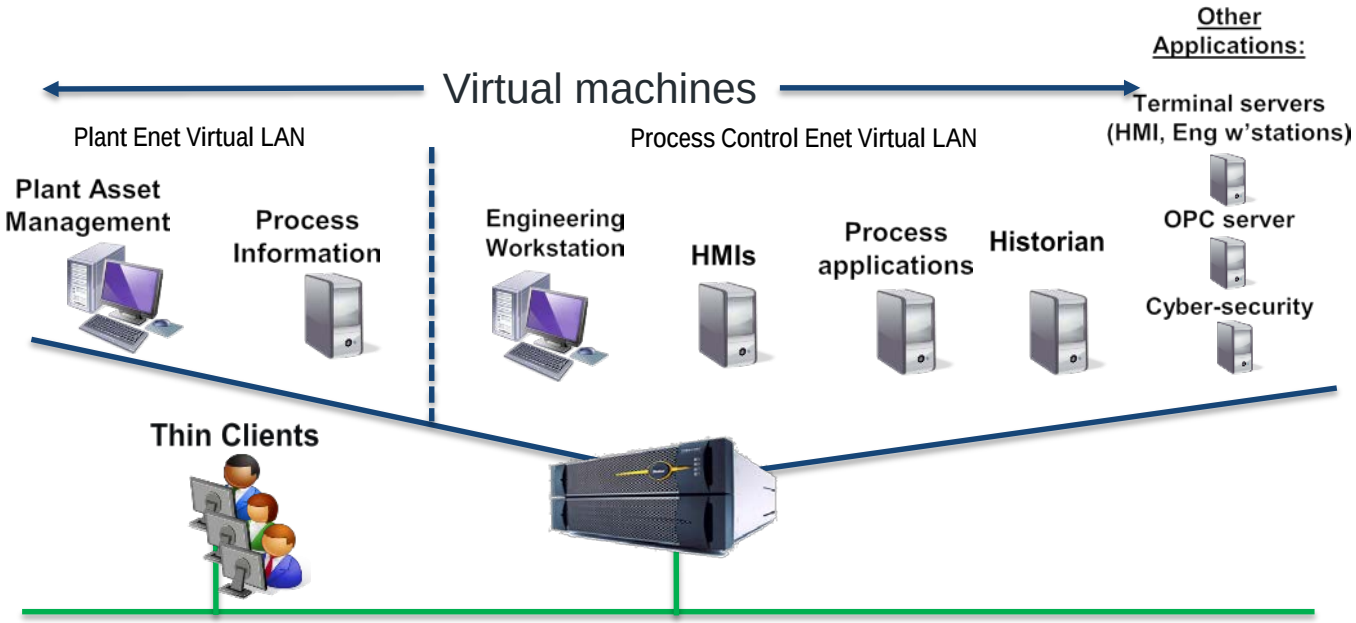


Problem: server failure takes down ALL applications

IT like redundancy solutions:

- Are recovery solutions
- Guarantee downtime & data loss
- Entail complex scripting and testing
- Require multiple (expensive) software licenses
- Need trained experts to implement & maintain

Fault Tolerance Protects Virtualized Applications



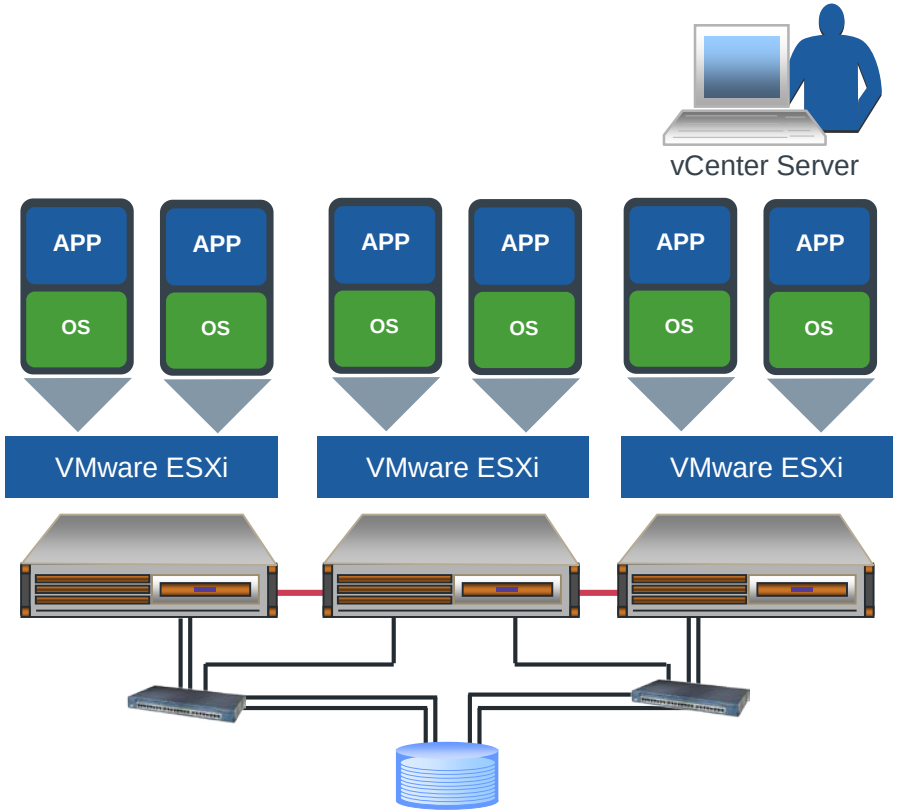
Fault tolerant server from Stratus Technologies

Eliminates The Vulnerability Of Virtualization

Fault tolerant servers deliver:

- No downtime or data loss
- Operation like a single standard server
- Simple operation & management
- Hot swap & easy to service with no special training
- Cost savings – only one s/w license required per application
- Integration with automation system HMIs
- A 7+ year lifespan

Before ftServer - VMware HA clustering



Big Downsides

- ✕ IA Sites often lack required IT personnel or skills
- ✕ Computer failure causes application restart!
- ✕ High cost
- ✕ Complex design .. Can introduce failure

The Better Solution - Stratus ftServer

You don't need:

- vCenter Server
- Multiple Servers
- Multiple OS Licenses
- Redundant fabric switches
- External storage (SAN)
- VMware Essentials Plus License

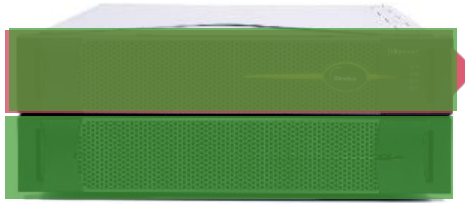
Simple to Manage & Peace-of-Mind Computing

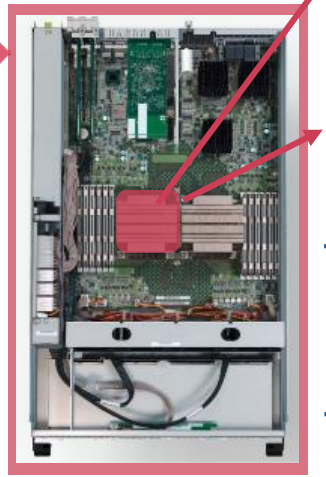
The ftServer Technology Explained

Duplex Hardware Components

- Purpose build to provide Uptime unachievable by standard servers
- Hot Swappable Components
- Manage like single x86 server, transparent to application
- No loss of inflight data

Maintenance Architecture and Remote Monitoring





Component fails. System ISOLATES fault and notifies Stratus that a CPU has failed

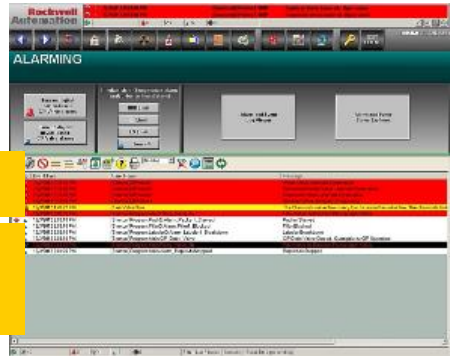
System automatically orders CORRECT replacement part
Next Day Delivery Service

Hot-pluggable components are EASY to replace

System synchronizes with replacement component

Normal processing continues throughout process!

Stratus Alerts in SCADA



HMI/Alarm

OPC DA Gateway

OPC UA

Local Email

Call Home

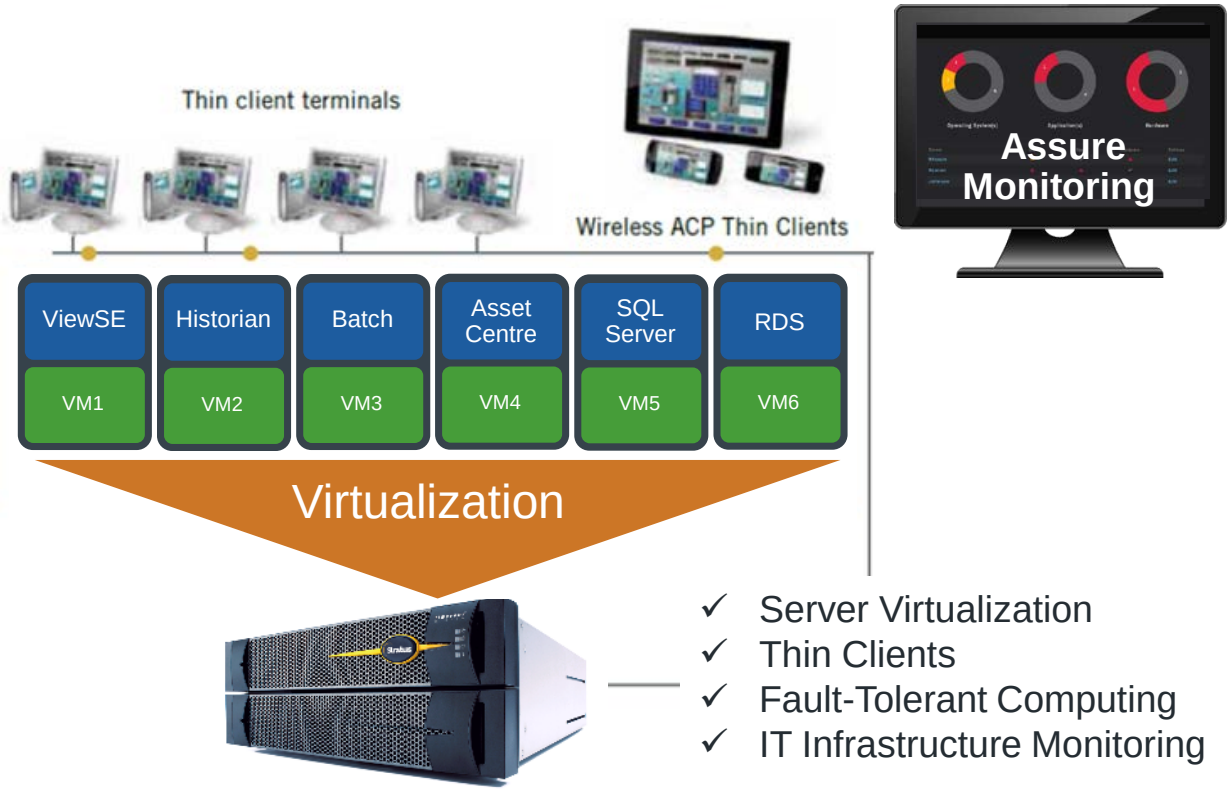
SNMP Traps

Notification Options

Stratus 24/7 Customer Assistance Center

The ftServer is seamlessly integrated as a viewable component in the HMI

Replace with a Modern Automation Infrastructure

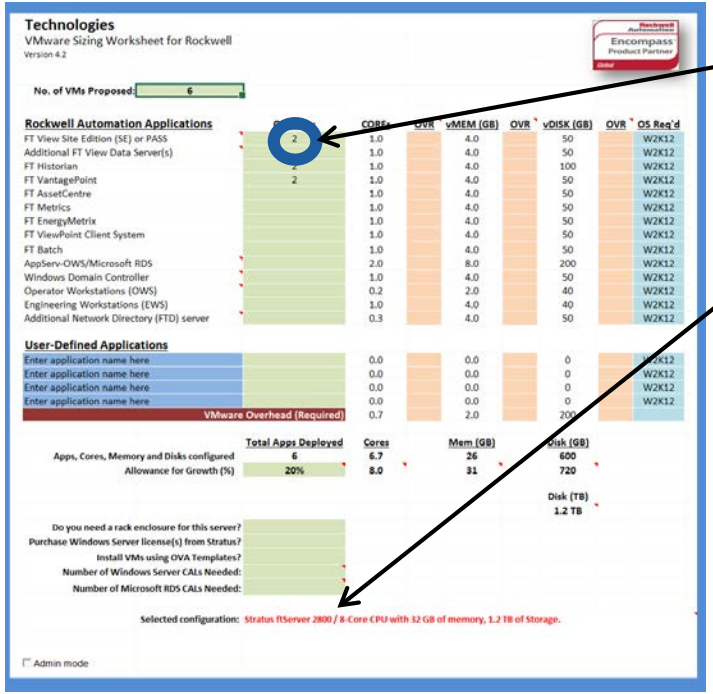


- ✓ Server Virtualization
- ✓ Thin Clients
- ✓ Fault-Tolerant Computing
- ✓ IT Infrastructure Monitoring

Benefits

- Small physical footprint
- Reduced power and cooling
- Easy to manage and maintain
- 100% availability
- Lowest Total Cost of Ownership

Stratus VMware Server Sizing Tool



Enter the quantity of each application that will run on the server

Recommended ftServer Model and configuration

Stratus tools make specifying the correct infrastructure easy

Local customers

Thankyou

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