HP Database and Middleware Automation

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Agenda

Cloud databases
HP Database and Middleware Automation Software
Use cases
Demo

Cloud Databases

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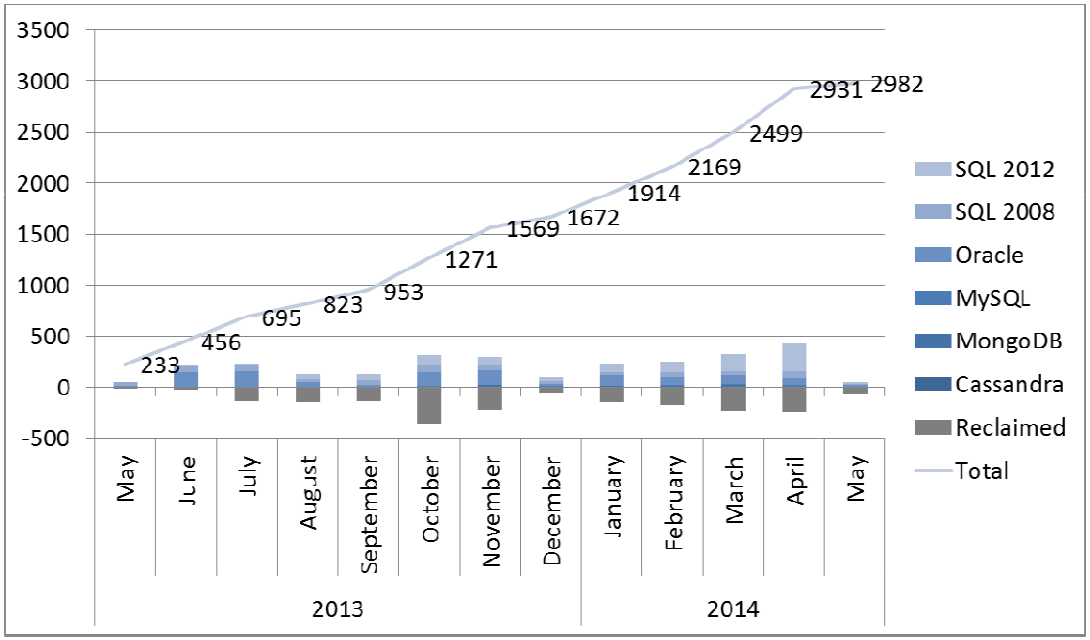
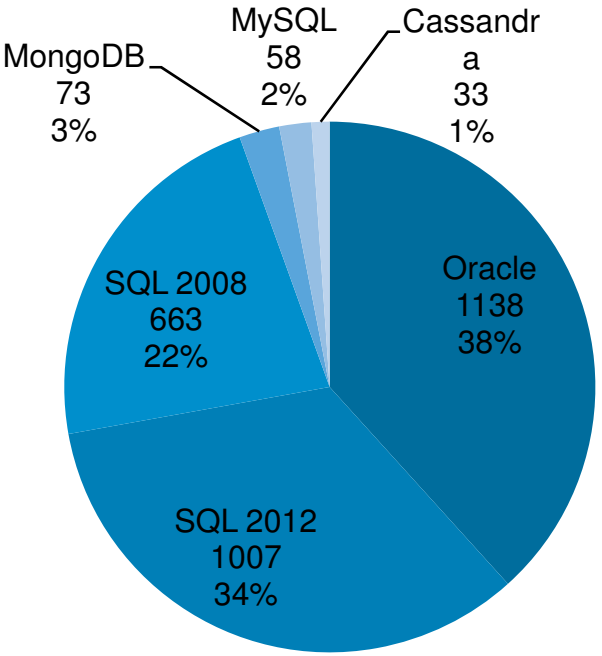
Status

- Total of 4,907 cloud databases provisioned to date (~ 40% reclaimed)





Demand

Traditional vs Cloud Databases

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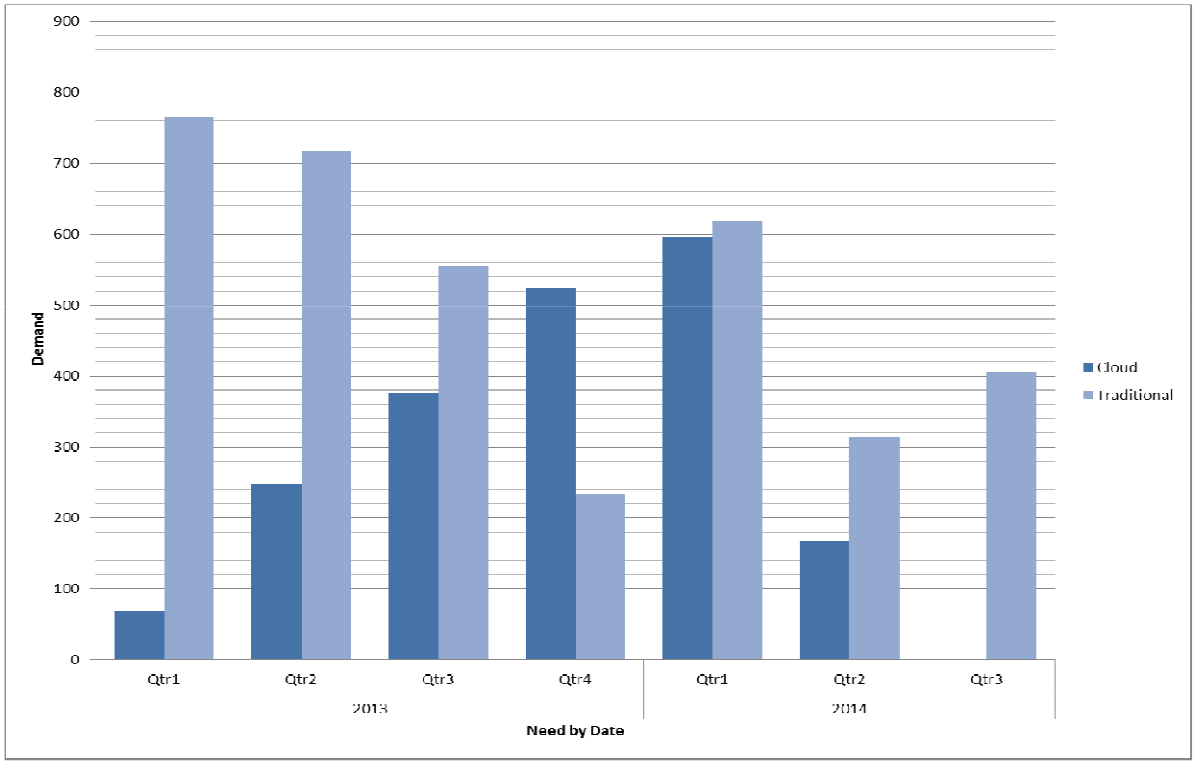
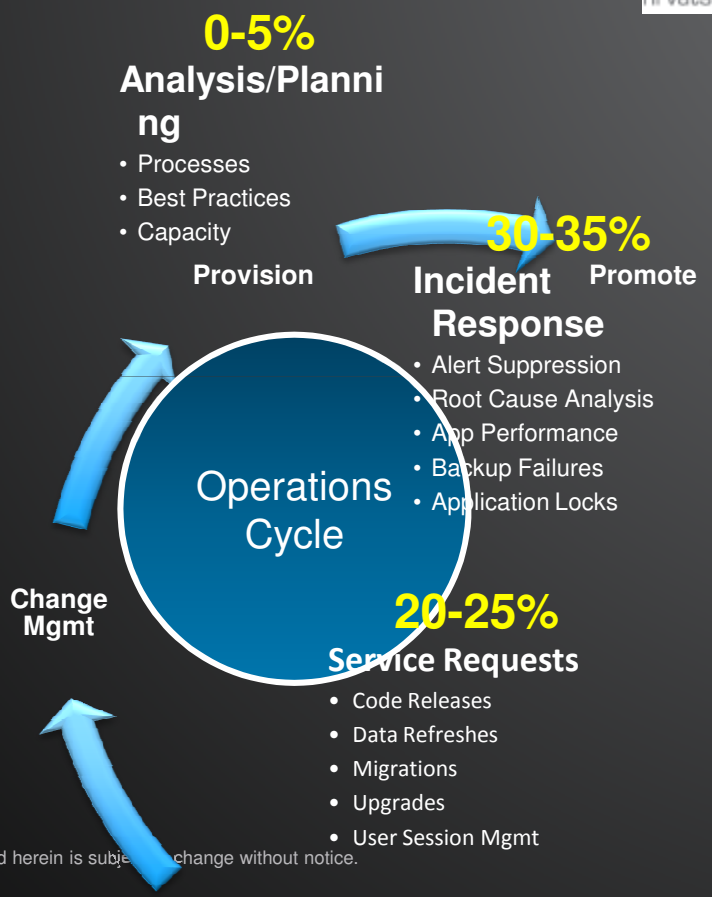
Based on DB CI create date per calendar quarter (not fiscal qtr.)



Release, Provisioning, and Change Automation



10-15%

Install/Provisioning

- Application Installs
- DB Instances, Schemas
- Standard Configurations
- Application-Specific Builds

15-20%

Maintenance

- Patching
- Compliance Hardening
- Space Management
- Backups
- Object Management
- Log-file Pruning

HP Database and Middleware Automation Software

Automate up to 60% daily administrative tasks

Automate database and Java EE patching and provisioning

- server patching and compliance requirements
- upgrade to newer platform releases
- self-service end-user portal for database or middleware

HP DMA supports Linux, Windows®, and UNIX®, and database and middleware technologies from multiple vendors

Return Of Investment in less then 1 year

The ways HP DMA software works

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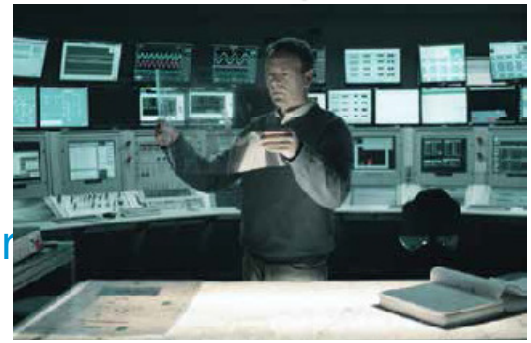

HP DMA deploys agents to managed servers.

HP DMA Solution Packs contain the built-in intelligence requir

They perform functions like provisioning, patching, compliance testing, and application code release management.

This architecture makes it easy to manage geographically dispersed servers.

HP DMA Solution Packs

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Solution Packs are the heart of HP DMA.

Solution Packs contain “workflows,” which are comprised of “steps.”

One can arrange steps into workflows for repeatable deployments to one or more database or middleware servers.

Workflows can be deployed out of the box or customized to support organizational standards and complex use cases.

Composite workflows call other workflows to automate multi-function lifecycle processes.

Solution Packs downloadable from the HP Live Network: http://hpln.hp.com

Various services available.

Database provisioning and configuration

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- Deployment and installation of standalone and clustered databases like Oracle RAC and SQL Server clusters.

- Configuration of database components like port settings, listeners, agent settings, etc.

- Database configuration cloning from a gold-standard master configuration.

- Database migration and upgrades to new releases either locally or to a new server, migrating source to target with data consistency validation.

- Data refresh of database copies—copies database objects as well as the data after configuring the target environment.

Database patching

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• Patch download, delivery, and staging to a target server so staging
can be performed in advance of patching.

• Identification of patch candidates using current database-specific
metadata.

• Execution of end-to-end patching process including pre- and post
steps like stoppingapplication services and disabling scheduled jobs.

Database code release management

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• Database code syntax validation to ensure that the update scripts will complete

successfully before actually running them against the database server.

• HP Database and Middleware Automation software can be integrated with popular source code control systems.

• Database code version validation can be configured to enable the identical code that was tested in QA to be implemented in production.

• Database change security validation helps prevent unauthorized commands, like GRANT requests or creation of privileged users, from being run against the database.

Database compliance

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- Configuration hardening to secure database audits objects like binary permissions and user account access.

- Configuration scanning and auditing that can target one or more servers in parallel for hundreds of configuration parameters.

- On-demand compliance reporting based on CIS, PCI, or SOX compliance standards.

- Workflows that can remediate compliance issues in misconfigured environments.

Application server provisioning, patching and configuration management

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- Installation and configuration of Java EE environments and their management components for standalone and clustered environments.
- Installation and configuration of web server front ends.
- Download of application server and web server binaries to any target server, creating response files based on configuration policies and automating the silent installation and post-provisioning configuration of application servers and web servers.
- Addition of nodes to an existing cell or domain to expand or scale existing clustered environments.
- Patch download, delivery, and staging to a target server with staging performed in advance of patching.

Application server provisioning, patching configuration management (cont.)

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- Execution of end-to-end application server patching processes, including stopping and starting of runtime components and backup and restore of application configurations.
- Creation and configuration of clusters and cluster members, data sources and web server objects.
- Configuration of application server log attributes and heap size for each member in the cluster.
- Creation and configuration of data sources for backend database connectivity from your application to your backend database resource.
- Creation and configuration of web server definitions for purposes of limited web server management and mapping of application to web server resources at application deployment time.

HP Database and Middleware Automation software infrastructure

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- Secure, authenticated, and encrypted communications.
- Role-based access control authentication of users and workflow requestors.
- Near-real-time synchronization among decentralized infrastructure components.
- Remote management, disaster recovery, and global visibility with failover.
- Optional replicated database, software, and user directory for redundancy.
- Demonstrated scalability and high performance.
- Lightweight agents that are mostly idle until activated to run a workflow.
- Agent support for multiple operating systems and releases.

HP DMA versus in-house scripts

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Dynamic attributes—The intelligence in the core platform allows decisions to be dynamic. For instance, if one or more target environments change, HP DMA avoids the need to manually update each workflow, which reduces maintenance overhead tremendously.

Policy definition—The software's policy console allows administrators to specify environmental attributes that are not auto-discovered. For example, you can create centrally-defined policies that specify naming conventions and change windows. If you change a policy, all workflows that reference the policy are updated automatically. **Smart groups**—The software has a built-in inventory and attribute query process that can identify candidate target systems to run workflows on. For example, *show me the Oracle systems that do not have the latest patch set applied, and then run the patch workflow on them.*

HP DMA versus in-house scripts (cont.)

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Tribal knowledge—The person who writes a script knows how to use and maintain it. If that person is unavailable or leaves the team, the secondary person may not have the same knowledge. That person may use their own set of scripts causing failures or deviation from standards. Through pre-defined workflows, HP DMA significantly reduces the reliance on tribal knowledge about database and middleware automation. The software allows senior administrators to define and enforce configuration standards. Finally, because HP DMA workflows can use data discovered from the existing IT environment, fewer parameters need be entered by administrators.

Maintenance overhead—There is generally a one-to-one correspondence between a script and a target database instance. Scripts also make assumptions about target environments. Every time a key assumption changes, you must update the scripts on each target server. That could affect thousands of instances, because the scripts are usually not managed from a

HP DMA versus in-house scripts (cont.)

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Lack of process conformity—Most scripts do not easily integrate with other tools such as ticketing or asset management systems. HP DMA allows processing standards to be accurately modeled within its workflows and reused across multiple environments. The software integrates with orchestration tools like HP Operations Orchestration software and third-party automation tools.

Centralization, authentication and auditability—Access is controlled based on environmental segregation (production versus development), user privileges and roles, and workflows. This makes deployment and control much easier to manage, and it makes audit tamper proof. Equally important, the software allows less experienced personnel to perform complex activities via a workflow—without the need to grant them local access on the target servers and databases.

Cross-server coordination—An automated process often has to span multiple database servers (a data migration or upgrade, for example). HP DMA workflows easily accommodate such situations, whereas with scripts, cross-server communication and coordination can be difficult to accomplish.

HP DMA users

HP DMA is managed by subject matter experts who are responsible for
the database and middleware infrastructure of an organization.

They make workflows they create available to help-desk personne
developers, IT end users, and others who manage or require database
or middleware services.

Role-based access controls enable authenticated access to workflows
while freeing administrators to concentrate on high-impact issues.

Integration with other HP solutions and third-party products

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• **HP Cloud System Enterprise**—HP DMA is the key enabler of platform as a service for

databases and middleware for HP Cloud System Enterprise offerings.

• **HP Server Automation software**—HP DMA runs on HP Server Automation software

infrastructure, leveraging HP Server Automation software's secure, authenticated, and

scalable communication components and agents.

• **HP Operations Orchestration software**—HP DMA deployments can be displayed in the HP Operations Orchestration software user interface and used by HP Operations Orchestration software developers as a step to run in an HP

Integration with other HP solutions and third-party products (cont.)

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• HP Cloud Service Automation software—HP DMA workflows can be defined as service blueprints in HP Cloud Service Automation software. That can simplify self-service requests for application platform as a service for databases and middleware.

• HP Continuous Delivery Automation software—HP Continuous Delivery Automation software application models for databases and middleware can inherently call HP DMA workflows to provision or patch databases or middleware as part of the application management model.

• HP DMA web services API can be used to integrate with self-service portals, third-party products like process lifecycle management, ticketing and tracking systems, run-book automation tools, and other external processes to securely drive HP DMA workflows.

Customer Use Case: Global Bank

Platform as a Service

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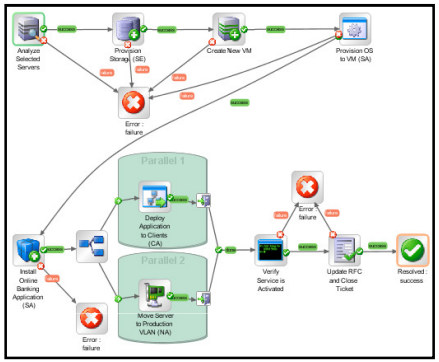
- **Challenges**
  - Utilisation & Tight Capital Constraints on Data Centres
  - Long Lead Times for Server Provisioning
  - Inconsistent Database Builds
  - Inconsistent Database Patch Processes



- **Solution and Benefits**
  - Infrastructure Application Hosting Service (Platform as a Service – **PaaS**)
  - Self Service for Application Development and Support Teams
  - Global Deployment (EMEA, USA, Asia) across Oracle, SQL, Sybase and DB2
  - Database delivery has shortened from 2 days to 30 minutes
  - Guaranteed Database Configuration Consistency
  - Consistent Patching (e.g. Oracle October CPU deployed in 5 weeks)
  - Significant reduction in Cost of Ownership around database estate
  - Improved Utilisation through virtualisation and de-commissioning

Customer Use Case; Finance Company

Database as a Service

- **Challenges**
  - No Standard Builds, Inconsistent Quality, Long Lead Times
  - No Database Patching – Audit Issues
  - Very poor DB to DBA Ratio's
- **Solution**
  - HP DMA plus HP Operations Orchestrator
  - Standard, Audited Service Offering for Oracle 11gR2
  - Fully Integrated to Service Request Catalogue and Virtualisation Management Tier
  - Automated Patching to address Audit Points
- Benefits
  - Projected Net Savings of $34m+ over Five Years
  - Return on Investment of 400%+
  - Databases Provisioning on request in under 2 Hours
  - Each Provisioned Database is audited for CIS Level 1 & 2 Compliance

Database automation and provisioning delivers demonstrated ROI

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	Environment	Pain points/drivers	Results
Bank	• 15,000 DB servers • 660 DBAs	• DB and 3rd party app config took 5–7 days • Patching 6–9 months behind • Reduce DB ops costs by 20%	• DB and 3rd party app config–<1 hour • Over 50% efficiency gain in 1st quarter • Production rollout in 4-1/2 months
Telco	• 3470 DBs • 140 DBAs • 70% off-shore	• Oracle 10>11 migration • DB application code release management • Oracle compliance	• 60% efficiency gains • Improved compliance efficiency over 90% • Reduced off-shore by 37,000 hours annually
Healthcare	• 2100 DBs • 1900 WebSphere servers	• App deployment took 12–15 days • Expand IaaS Cloud to PaaS Cloud	• App deployment now <4 hours • Eliminated ad hoc scripting
Healthcare	• 80 prod DBs • All Oracle RAC	• Patching took 14 DBAs over a month • DB patching annual cost—$750,000 • New requests to patch 4X/year from 2X/year	• Patching takes 4 DBAs 2 weeks • DB patching annual savings of $650,000

HP AUTOMATION CAPABILITY

FROM THE INFRASTRUCTURE THROUGH THE APPLICATION L

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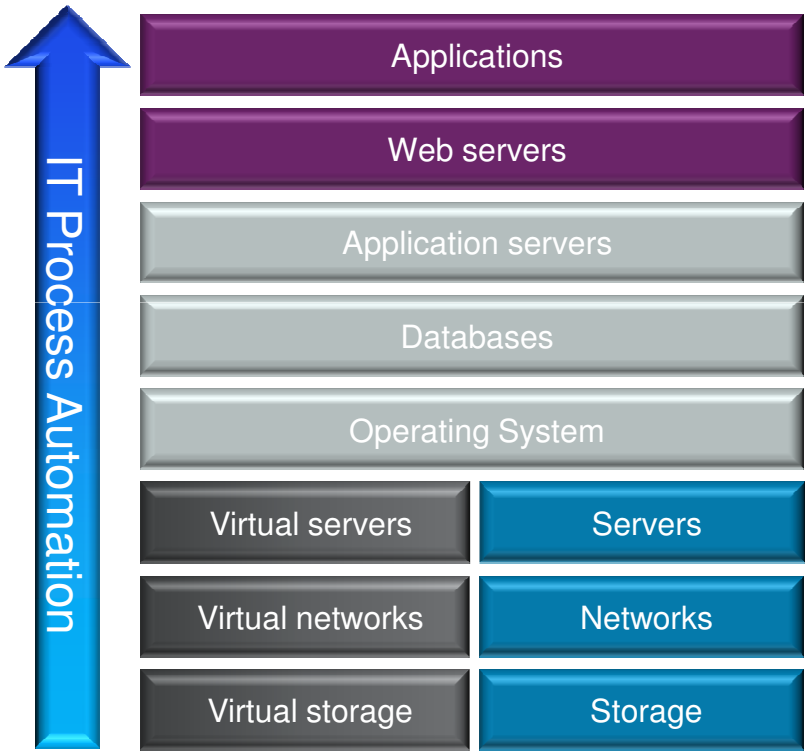

Application Deployment Manager

Database and Middleware Automation

Infrastructure Automation

For more information

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To learn more about HP Database and Middleware Automation software and other HP Business

Service Automation solutions, visit the following links:

- HP Database and Middleware Automation software: hp.com/go/dma
- HP automation and orchestration solutions: hp.com/go/dca
- Get connected with updates from HP: hp.com/go/getconnected
- HP Business Service Automation essentials: hp.com/go/bsa
- HP Business Service Automation solution: hp.com/go/automateYourIT
- HP Business Service Automation blog: hp.com/go/BSABlog

Cloud Database Service

Demo: http://www.youtube.com/watch?v=hHFGNe5hr-A

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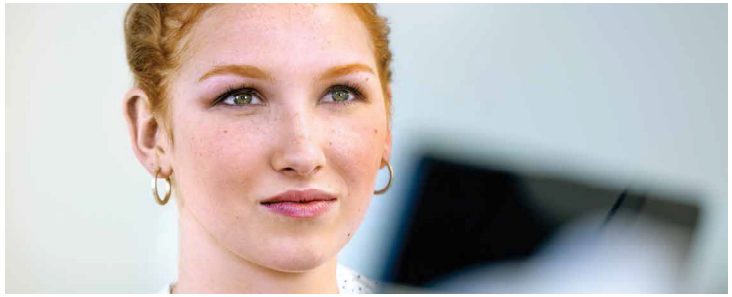

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Thank you