



# How to improve management of user profiles and user experience

A user environment management customer case

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# 1 Managing user profiles and user experience

A growing number of IT organizations are struggling with the management of their user profiles and application settings. As a result, the user experience is also suffering. Facing these challenges can be a daunting task for IT managers and IT administrators. What can be done to improve management of user profiles and user experience?

In this whitepaper, we will present a case study of how daily issues were reduced and user experience was improved for the IT organization of an international supplier of high-tech maintenance and support services, by implementing VMware User Environment (UEM).

## 2 Challenges and problems

### **The existing situation harbored the following challenges and problems:**

- Management of 2,000 users who have the ability to logon to both physical as well as virtual Windows 7 desktops. Roaming profiles are used but are extremely large and are managed with quotas.
- High amount of profile corruption issues.
- Every time profile corruption appears, the user profile is deleted which causes all application settings need to be set again. The reconfiguration of these applications is very labor intensive.
- Logon times on both physical as virtual desktops are above 90 seconds.
- It is difficult to migrate from old to new operating systems.

## 3 Wishes and requirements

### **In the desired situation, the following aspects needed to be achieved:**

- Manage user profiles with minimal effort.
- Eliminate profile issues during Microsoft Windows Operating System migrations.
- Be able to use a single profile with multiple Microsoft Windows systems (Remote Desktops, Windows 7 VDI).
- Reduce logon times to acceptable industry standards (10 – 20 seconds).
- Solve or reduce user profile corruption impact. Users must be able to run their desktop at all times.

## 4 Proposed solution

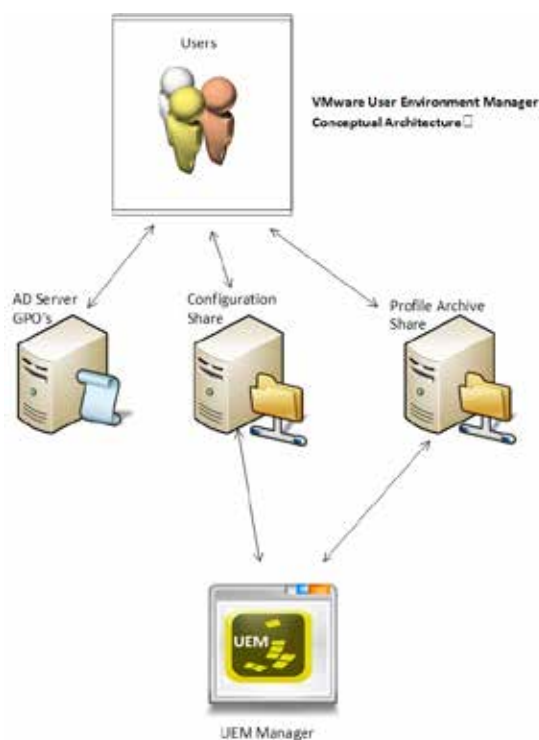
To be able to meet the requirements, VMware User Environment Manager was selected. VMware UEM offers desktops and applications that adjust to the actual situation of the end user, providing access to the IT resources that are required, based on contexts like a user's role, device, location and connection protocol.

VMware UEM has a small footprint and leans heavily on an existing Microsoft Windows Architecture. The image on the right shows the conceptual architecture that was implemented.

VMware UEM was deployed by using existing infrastructure components like Group Policy Objects and Windows file sharing. The configuration files and profiles are stored in file shares that are secured by using NTFS permissions.

The configuration itself is provisioned to the user by a Group Policy Object (GPO). In the GPO several settings are added like the location of the configuration files, the amount of backups that need to be taken and the debug level of log files.

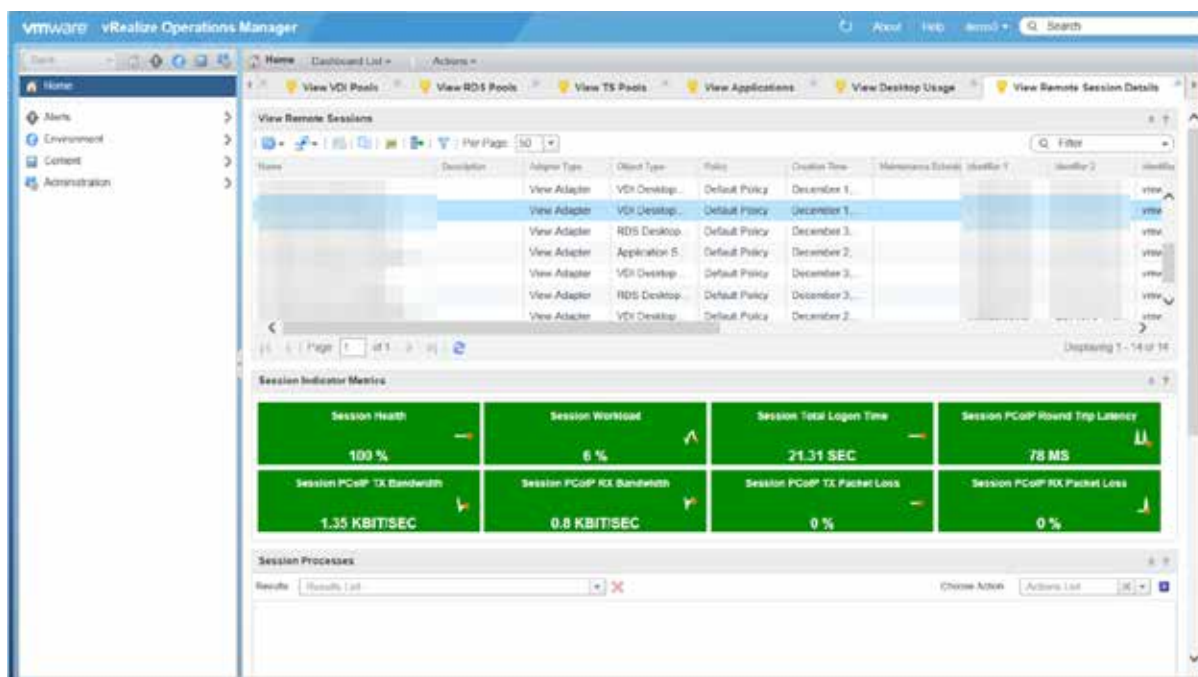
As stated before, VMware UEM has a small footprint. No database or intrusive agent is needed to be able to implement VMware UEM. The client agent is small, easy to distribute and non-intrusive to applications and the desktops.



# 5 Tools used

To gain objective data about logon times, several tools were used like vRealize Operations (vROps) for Horizon View and the event viewer of problem desktops.

The vRealize Operations for View adapter provides in-depth information about both desktops and sessions. In this case, logon times on a per session-basis are displayed in one of the main dashboards:



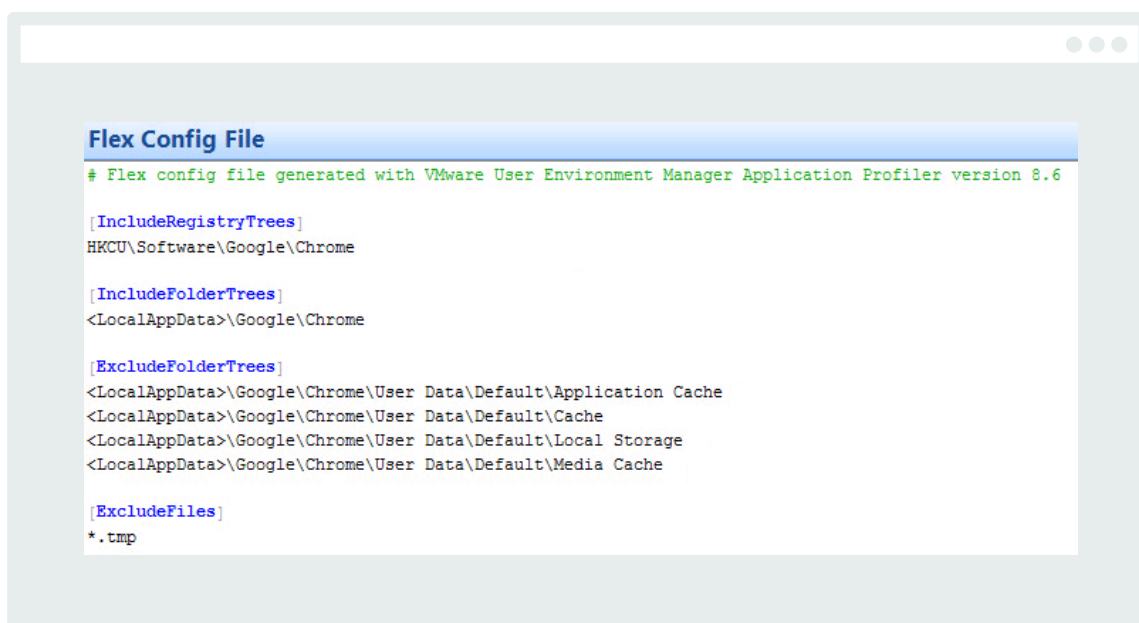
The Windows Event Viewer shows different logon events like starting Windows Services and applications and will show these in a chronological order:

Level	Date and Time	Source	Event ID	Task Category
Information	18-11-2015 16:34:42	Winlogon	7002 (100)	
Information	18-11-2015 16:38:28	Service Control Manager	7036	None
Information	18-11-2015 16:38:28	Service Control Manager	7036	None
Information	18-11-2015 16:38:28	Service Control Manager	7036	None
Information	18-11-2015 16:39:30	Service Control Manager	7036	None
Information	18-11-2015 16:29:30	Display	4107	None
Information	18-11-2015 16:29:08	Service Control Manager	7036	None
Information	18-11-2015 16:29:08	Service Control Manager	7036	None
Information	18-11-2015 16:29:03	Winlogon	7001 (100)	
Information	18-11-2015 16:29:02	Service Control Manager	7036	None
Information	18-11-2015 12:05:30	Eventlog	6013	None
Information	18-11-2015 11:56:27	Service Control Manager	7036	None
Information	18-11-2015 11:52:55	Service Control Manager	7036	None
Information	18-11-2015 1:28:41	Service Control Manager	7036	None
Information	18-11-2015 1:25:02	Service Control Manager	7036	None
Information	18-11-2015 0:06:01	Service Control Manager	7036	None
Information	18-11-2015 0:03:01	Service Control Manager	7036	None
Information	18-11-2015 0:00:00	Service Control Manager	7036	None
Information	18-11-2015 0:00:00	Service Control Manager	7036	None
Information	17-11-2015 12:00:30	Eventlog	6013	None
Information	17-11-2015 0:06:01	Service Control Manager	7036	None
Information	17-11-2015 0:03:01	Service Control Manager	7036	None
Information	17-11-2015 0:00:00	Service Control Manager	7036	None

The timestamps that are showed in the Date and Time column provide information about the amount of time an event needs to be executed. The sum of these events is the total amount of time needed for a user to logon. Synchronizing the profile is a part of this process.

## 6 Changes made to the IT-infrastructure

By using VMware UEM, it is possible to separate the configuration of an application from the profile. These configuration settings are segmented into profile containers which are injected into the profile and extracted from the profile on application start and close. Through the UEM Application Profiler, an IT admin is able to create an application profile template which contains all application depended settings:

A screenshot of a text editor window titled "Flex Config File". The window contains a configuration file for VMware UEM. The file starts with a comment: "# Flex config file generated with VMware User Environment Manager Application Profiler version 8.6". It then lists several sections: "[IncludeRegistryTrees]" with the path "HKCU\Software\Google\Chrome"; "[IncludeFolderTrees]" with the path "<LocalAppData>\Google\Chrome"; "[ExcludeFolderTrees]" with four paths: "<LocalAppData>\Google\Chrome\User Data\Default\Application Cache", "<LocalAppData>\Google\Chrome\User Data\Default\Cache", "<LocalAppData>\Google\Chrome\User Data\Default\Local Storage", and "<LocalAppData>\Google\Chrome\User Data\Default\Media Cache"; and "[ExcludeFiles]" with the file extension "\*.tmp".

```
Flex Config File
# Flex config file generated with VMware User Environment Manager Application Profiler version 8.6

[IncludeRegistryTrees]
HKCU\Software\Google\Chrome

[IncludeFolderTrees]
<LocalAppData>\Google\Chrome

[ExcludeFolderTrees]
<LocalAppData>\Google\Chrome\User Data\Default\Application Cache
<LocalAppData>\Google\Chrome\User Data\Default\Cache
<LocalAppData>\Google\Chrome\User Data\Default\Local Storage
<LocalAppData>\Google\Chrome\User Data\Default\Media Cache

[ExcludeFiles]
*.tmp
```



Because these profile containers are separated on application- and windows-setting level, complete profile corruption becomes history. If, for some reason, a certain application-part of the profile becomes corrupted, only that application is affected. The rest of the profile and applications are still usable. To solve the issue with the certain application, only the container of that application needs to be restored. Users are able to restore these containers themselves by using the self-service tool.

Some of the profiles at the customer in the before-situation were huge in size with some reaching 5GB (the Quotum limit). Most of these profiles contained big files like downloaded ISO files, installers and big PDF files. During every logon and logoff, these files were synchronized which caused a logon delay as well.

In the new situation default folders like the user's desktop, personal documents and favorites were redirected to a network storage device with a high throughput. By using Folder Redirection, no unnecessary files and folders are saved inside the profile containers which keeps them small and agile. These small application containers can be quickly synchronized with the user's local profile.

The only one drawback to this setup: users must be connected to the corporate network in order to reach the network-shares where the profile-folders are residing. However, in this case, this was no problem: users working on VDI and/or desktops have a permanent, high bandwidth network connection and users working from a laptop always set up a VPN connecting them to the corporate network.

In a situation where no permanent connection to the profiles and config files exist, the UEM Sync Tool can be used to synchronize their configuration and profiles to the physical endpoint. In this way, offline access to their profile is guaranteed.

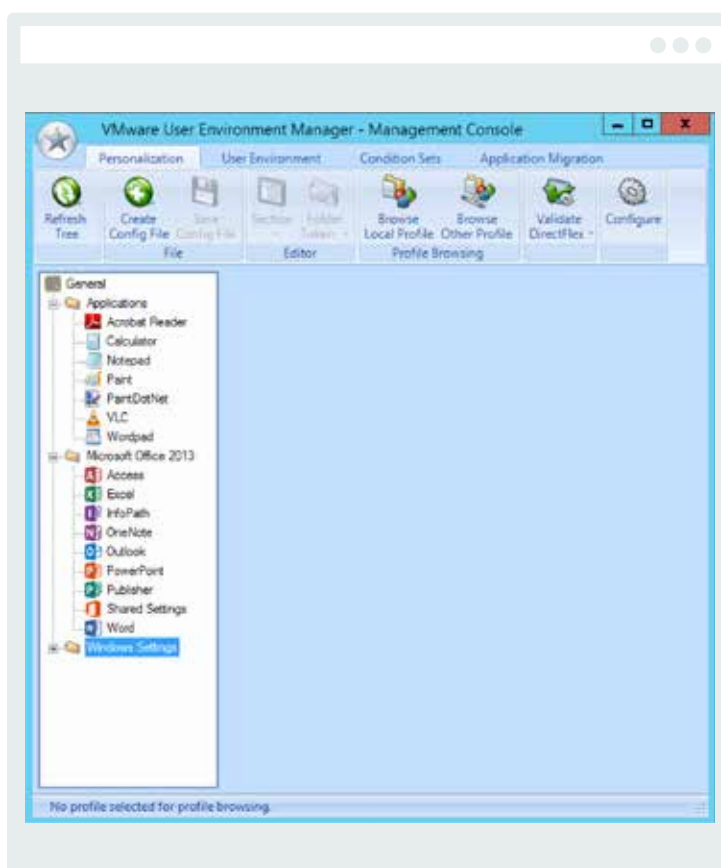
## 7 Ease of use

VMware UEM brings different aspects of User Environment Management to a single solution. That single solution has an intuitive management interface that brings profile management, application management and user settings together which are manageable from a single-pane of glass for the IT department.

Adding a new application to the inventory of UEM is fairly simple. There is a wide list of known applications like various Microsoft Office versions and Adobe Acrobat Reader. For applications that need a custom configuration, the Application Profiler is used to analyze an application. It will create a configuration file which needs to be imported to the VMware UEM Management Console.

Because the interface of VMware UEM is intuitive and simple, no extensive training or education is needed to manage profiles and applications with VMware UEM.

Consolidating multiple User Environment Management tools into a single solution reduces Operational Expenses (OpEx), because the IT admin needs less time to solve issues. The self service functionality empowers end users to solve profile- and application related issues themselves.



## 8 Migration scenarios

The customer had challenges in migrating to new Operating Systems. Most of these challenges were caused by differences in profile settings between Operating Systems. Also, roaming between a Windows 7 Desktop and a Windows Server 2012R2 Remote Desktop caused issues because of the interoperability between these Windows versions.

VMware UEM only synchronizes the settings needed into the local profile of the user. These settings are generally the same for applications despite the Operating System version. For the customer this meant that they were able to maintain only one application container that was usable for their physical Windows 7 notebooks, their virtual Windows 7 desktops and their Windows 2012R2 Remote Desktops.

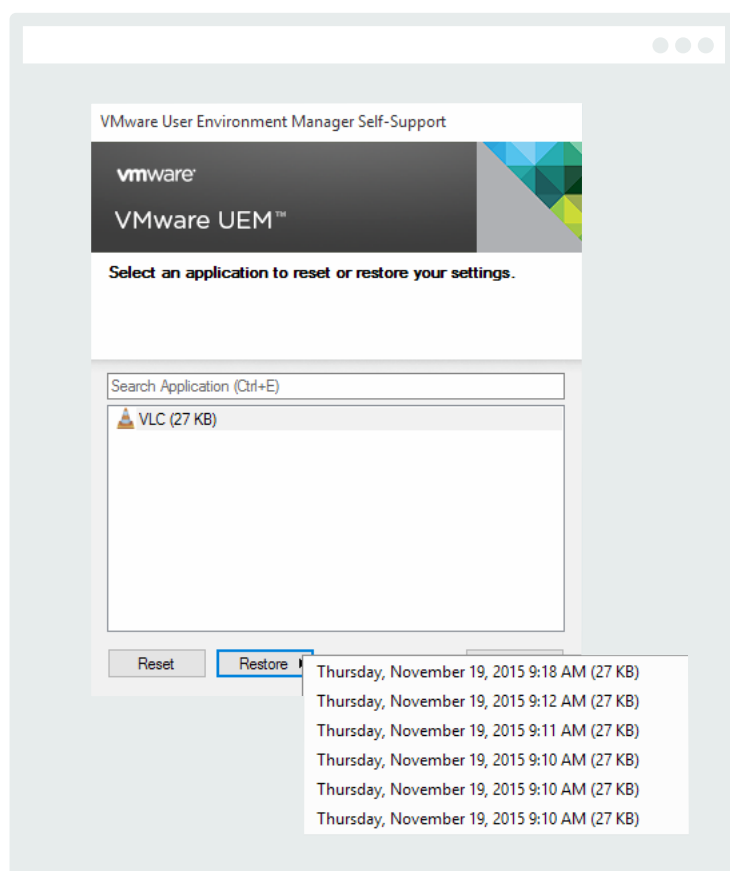
## 9 Results

The results which are booked by the implementation of VMware UEM are measured by vRealize Operations for Horizon View. By implementing VMware UEM the logon times are reduced from over 60 seconds to 12-15 seconds. By drastically reducing the size of the user profiles (multiple GB's to only a couple of MB's), the support calls instantly dropped to almost none.

End users were educated through in-company training videos to use the self service tool.

Through the self service the end users were given the option to restore shortcuts they deleted or even restore old program settings they accidentally overwritten without the intervention of the IT department.

For the users who are experiencing corrupted profiles the impact is now reduced to a minimal. If the user profile is corrupted it can be easily deleted because the application settings are pushed by UEM centrally.



# 10 Conclusion

VMware User Environment Manager has drastically improved the user experience by solving multiple profile-related issues.

Loading the user profile currently only takes around 12-15 seconds. No application-related settings are loaded during the logon process which saves a lot of time. Also, folder redirection makes sure that users are saving their large files directly to the network which keeps the profiles small in size and easy to synchronize.

By segmenting the profiles into application containers which are Windows Operating System independent, an application profile is usable between different Windows Desktops like Windows Server 2012R2 Remote Desktops and Windows 7 VDI Desktops. Migrating to newer Windows Operating Systems becomes less complex because of this.

The segmented application profiles avoid corruption of the entire user profile. If corruption occurs, this will only happen on application level for a certain application. The user is able to restore an application profile to a working-state by using the Self Service tool. This has reduced the number of support tickets drastically.

VMware User Environment Manager is a very powerful solution that can be implemented in both virtual as well as physical environments to enhance the user experience in multiple ways. Users will be able to improve productivity and IT admins will have less application- and profile related issues. By integrating VMware UEM with an application distribution solution like App Volumes, management of end user applications and settings can be simplified even further.



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