

TA18

Innovative Program to Access VMware Tools

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Introducing...

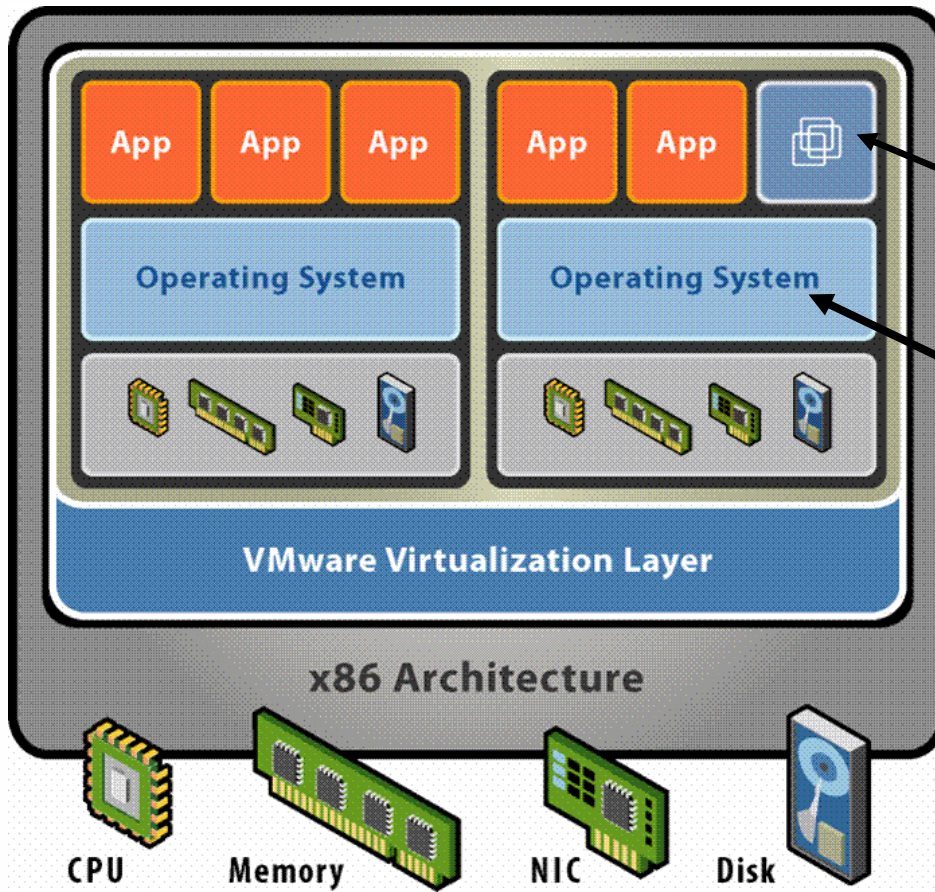
- **Open Virtual Machine Tools (open-vm-tools)**
- **We are open sourcing portions of the Linux, FreeBSD and Solaris VMware Tools, and moving to a collaborative development model with the community**
 - Allows use, modification, and distribution of the code being open sourced
 - Non VMware developers can contribute through community development, and collaborate with VMware engineers
 - Aids Linux distributions in bundling open-vm-tools for a better “out of the box” guest experience on virtualization platforms
 - Open source project sponsored by VMware Inc.

Agenda

- ◊ **VMware Tools overview**
- ◊ **Motivation – why and what**
- ◊ **Project goals**
- ◊ **Licensing**
- ◊ **Community collaboration**
- ◊ **Roadmap vision**
- ◊ **Challenges**
- ◊ **Website**
- ◊ **Questions**

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VMware Tools - Overview



VMware Tools services provide interaction with guest environment

Drivers provide access to virtual devices, host files, and support resource management

- VMware software that gets installed in Guest OS
- Components that enhance VM user's experience

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VMware Tools – Key Features

- Drivers for devices and filesystem access
- Memory ballooning
- Shared Folders
- Drag 'n' Drop, Text and File Copy/Paste
- Clipboard sharing
- Disk wiping and shrinking
- Time synchronization
- Automatic guest resolution resizing
- “GuestInfo”(stats about guest environment)
- Guest SDK
- Soft power operations
- Multiple monitor support
- GTK Toolbox UI
- Tools upgrader
- (experimental) VMware Descheduled Timer Accounting (VMDesched)
- (experimental) VMCI interface
- (windows only) Unity
- (3rd party) ThinPrint, Wyse

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VMware Tools – Key Components

○ Drivers

- > SVGA and mouse drivers
- > vmxnet driver
- > vmmemctl (“memory balloon”) driver
- > (experimental) VMware Descheduled Time Accounting (“VMDesched”)
- > HGFS driver
- > (experimental) VMCI driver

○ Applications

- > VMware Tools Service
- > Per-user agent
- > Toolbox UI
- > Upgrader agent

DEMO

VMware Tools running on laptop, and functionality

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Why Open Source, and Why Now?

- **Customers/partners need it**
 - Make Tools installation/upgrade part of guest OS lifecycle management; And as open source software components.
- **Enables 3rd party development and community around VMware Tools**
 - Rapid innovation
 - Ports to additional guest OS for which VMware Tools do not yet exist
 - Ease of maintenance
- **Allows access to Linux distribution channel**
 - Solves asynchrony between guest OS kernel version and VMware platform support that are on independent release trains
- **Virtual appliance market driving needs for newer, non-traditional guest OS support**
 - Requires rapid development model possible through community involvement and development
- **Virtualization being main stream, making this suitable for collaborative development with the wider community**

What is Being Released?

- **Large portions of VMware Tools for Linux, Solaris and FreeBSD**
 - > More details in next slide
- **Existing code shipping under open source licenses (X11, modified BSD) will have no change in licensing terms**
- **Components owned and contributed by 3rd parties will be excluded**

What is Being Open Sourced at Launch?

- Drivers for devices and filesystem access
- Memory ballooning
- Shared Folders
- Drag 'n' Drop, Text and File Copy/Paste
- Clipboard sharing
- Disk wiping and shrinking
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How will this Affect Current VMware Tools?

○ **Unchanged:**

- No impact on updateability of VMware Tools package for existing customers/users/partners
 - Commercial package will continue to be available with current support and testing from VMware as before
- Same forwards and backwards compatibility goals as before
- Random 3rd party modified versions of VMware Tools will still not be supported in our shipping products

○ **Added benefits:**

- Ability to co-exist with closed source components that are proprietary and/or 3rd party developed
- Community contributions improving both open source and commercial package
- Tools upgrades/updates will happen in a distro-friendly manner, as part of the guest OS lifecycle

Project Goals

○ **Evolution, not revolution**

- > We'll take time to do it right and in the best interests of the community/customers
- > Will engage community early on, not after perfecting
- > Open and gradual improvement, **learn** through the process

○ **Inclusive of contributions from community**

- > Based on technical merit, and best fit to user needs
- > Provide guidance on code reviews, processes

○ **Partnership with distributions**

- > Distro-specific packages for best user experience
- > Alignment on distribution mechanisms

○ **Fairly aggressive timeline to maximize impact of the project**

- > At the same time, taking time to examine our goals and actions

Licensing

- **Most Linux source will now be released under GPL-compatible free software licenses.**
 - > GPL v.2 for all kernel drivers/components
 - > LGPL v.2.1 for all user level components
- **Some code under existing GPL-compatible license will remain as before**
 - > Modified BSD for some of common user level infrastructure
 - > X11 for SVGA and mouse drivers
- **Code for which no suitable license is found will be excluded (3rd party and/or proprietary components etc.)**

For more info, please refer to:

<[http link to open-vm-tools sourceforge licensing faq](#)>

<http://www.fsf.org/licensing/licenses/index.html>

open-vm-tools community Development *<needs update>*

- **Sourceforge hosted**
 - (<http://open-vm-tools.sourceforge.net>)
- **Central activity center of open-vm-tools project**
- **Announcements, technical discussions, administrative processes**
 - Documents, dev processes, bugs, user groups, contributions, projects, merges etc.
- **Browse, download and contribute source**

Current VMware Tools Development Process

- **Our current internal development model is successful**
 - Utmost focus on quality and maintainability with emphasis on coding standards
 - Scalable from minor bug fixes to large scale projects
 - Every submission reviewed by subject matter experts
 - Backward and forward compatibility is a very important goal for VMware Tools code
 - Common code needs to run on wide variety of guests

We hope to blend the best from both worlds (OSS and VMware) in the [open-vm-tools](#) project

open-vm-tools Community Development Process

- ◊ Being drafted. At a high level:
- ◊ Code contribution process
 - > requires copyright assignment from contributors
 - > needs to be approved by developers who work on VMware Tools in the short term
 - > All commits done by VMware employees initially and gradually divested as we move towards adding external committers
- ◊ Internal “sponsorship” model to help contributors
- ◊ Initially may just be bug fixes, or ports to new guest OSes
 - > May require bit of consultation – documentation will be an evolving need

open-vm-tools Community Development Challenges

○ Potential challenges

- Development cultural aspects
 - Coding style
 - Review processes
 - Who to talk to about item 'X'
- Project governance
 - Building trust with the community
 - Decision making, change control
- Reconciling internal/external SCM processes
- Tracking software issues/changes
- Need for guest OS certification test suite
- May need access to VMware products and/or specialized software or hardware for certain features

open-vm-tools Source Code Management <needs update>

Being drafted. At a high level:

- ◊ **SCM repository to be made available on open-vm-tools website soon**
- ◊ **branch policy**
- ◊ **merge cycles/processes**

open-vm-tools Project Vision *<needs update>*

	At Launch	0-6 months	6-12 months	12+ months
Source in GPL-compatible license	Core functionality (kernel and user level components)	Relevant documentation; additional source code	Rest of source code that can be licensed	Ongoing new features; installers, Test infrastructure
Community Tools	E-mail alias;	Mailing lists; blogs; discussion forums Bug filing database	Internal bug database access	
Community development	Source code access; Patch submissions via e-mail;	Source repository in subversion; merge	User groups	Open-vm-tools test development
Project administration		governance in place; charter published	Review processes; external reviewer participation	sub-projects

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open-vm-tools Project Vision *<needs update>*

- ◉ **Enable broader guest OS support through collaborative community development model**
- ◉ **One set of Guest OS Tools across all virtualization platforms for greater VM mobility and customer benefit**
 - > Collaborate with broader community to achieve this vision
 - > Would like to work closely with other virtualization platform vendors as well

How Do You Contribute? *<needs update>*

- Ongoing community participation ensures that this is a live project
 - > **Share your knowledge and work**
 - > **Provide feedback on what's working and what's not**
 - > **Participate in technical discussion forums**
 - > **Contribute all the way from minor bug fixes to major features**
 - > **Review contributions and questions from others**
- We will be posting specific projects and ideas soon
- <http://open-vm-tools.sourceforge.net>

open-vm-tools Project Challenges

- Driving cultural change across the company
 - > **From the immediate team to other developers across the company**
 - > **Several months in the making**
- Legal analysis of 9+ years of source code and IP portfolio
 - > **Picking a license that's inline with project goals and needs**
 - > **Patent analysis and licensing compliance**
- Mechanics of project
 - > **True Co-development model definition – branching, merges, review process etc.**
 - > **Process flow, copyrights, FAQs**
- Launch
 - > **Aggressive schedule encumbered by high expectations**
 - > **Ensuring we contribute useful stuff to the community**
 - > **Hard work by the team – long hours/days/months to make it come together in a coherent fashion**

Additional Information about this Project

<needs update>

- **Meet the engineers – *immediately after this session!***

- > 9/11 (Tues): 11-12:30 p.m. at ?

- **Birds of a Feather session**

- > 9/11 (Tues): 2-3 p.m. at ?

- > 9/12 (Wed): 2-3 p.m. at ?

- **Website: <http://open-vm-tools.sourceforge.net>**

- **Mailing lists:**

- > open-vm-tools-announce@sourceforge.net

- > open-vm-tools-discuss@sourceforge.net

- > open-vm-tools-devel@sourceforge.net

DEMO



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Source forge website (2-3 slides)

Navigate around live source forge website contents and/or provide screenshots (5 mins)



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EMBRACING YOUR VIRTUAL WORLD

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BREAKOUT SESSION