

The logo for LEVEL, consisting of the word "LEVEL" in a white, sans-serif font on a red rectangular background. A large, light gray cross is positioned to the right of the logo.

LEVEL

VMware, Inc.
Search Assessment
March 7, 2011

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Presented to: VMware
VMware, Inc.
650-427-1629

VMware Search | Agenda

- Usability Study
 - Procedures
 - Findings
 - Recommendations
- Technical Review
 - GSA Configuration
 - Architecture

Note: More complete findings and explanations found in document



VMware Search | Study & Participants

- 20 Participants
- Conducted remotely – web conference
- Discussions, interview, observations while using main search on vmware.com

Location	
U. S.	10
International	10

Segmentation	
B-2-B	15
B-2-C	5

Frequency of Visit	
Daily	5
Weekly	7
Monthly	6
Few times year	2

Age Ranges	
20s	2
30s	5
40s	9
50+	4



VMware Search | Participants – Past Experience

- Methods and Strategies for Finding Information
 - Navigate
 - Information desired is for a specific product
 - Know the location on the site
 - Search
 - More vague topic, not sure where on site to look
 - Very specific topic i.e. error codes
 - No clear preference for one over the other, it depends on the task

Past Impressions of Using Search		
Positive	4	<i>"I'm usually successful in what I'm looking for."</i>
Neutral	3	<i>"It's OK, it's not any better than other websites, it's not terribly easy to find things."</i>
Negative	13	<i>"It does give a lot of information, but exact details are hard to find." "Most of the hits that are returned are not relevant; it just doesn't seem to return what I'm looking for."</i>



VMware Search | Study Activities & Behavior

Searches Performed	52
Self Exploration	28
Task Directed	24

Relevancy Ratings	
High Relevancy	17%
Medium Relevancy	52%
Low Relevancy	31%

Success Rate	54%
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Where Participants look for Key Words			
	1 st	2 nd	3 rd
Header	67%	9%	0%
Text	28%	45%	25%
URL	5%	36%	75%

- Very few participants stepped through to the “next” page
- Several participants would repeatedly update their search terms
- Participants had high expectations and low patience
 - Expect their result at the top of result set
 - A couple participants indicated they would probably go to Google
 - A few participants complained when they had to click through to a 2nd link to get to their information



VMware Search | Issues: Relevancy of Results

- Product name not recognized as important

Search Results

Search VMware **vsphere** features and capabilities

Results 1 - 10 of about 1650 for vsphere features and capabilities.

[VMware View Features - Virtual Desktop Management & ...](#)
... Key **Features** and **Capabilities**. Windows 7 Support. Increase the speed and reduce the cost and complexity of migration ...
www.vmware.com/products/view/features.html

[VMware KB: FAQ: VMware View 4.5 new features and ...](#)
... View Premier includes all the **features** and **capabilities** of View Enterprise, and includes ... Can only **vSphere** be used with View Manager 4.5? ...
kb.vmware.com/kb/1027460

[VMware KB: Enabling dual monitor capabilities for Wyse Thin ...](#)
... Wyse Thin-clients are not able to use their dual monitor **features** with a ... 5, build 61.9, and higher can leverage the dual-monitor **capabilities** of an ...
kb.vmware.com/kb/1004039

[[More results from kb.vmware.com/kb](#)]

[VMware vSphere Features: Server Consolidation & ...](#)
... **Features**. ... than 20 physical servers, the Essentials and Essentials Plus Kits of VMware **vSphere** deliver enterprise-class **capabilities** in a ...
www.vmware.com/products/vsphere/small-business/features.html

[VMware vSphere Features: Private Cloud Computing for Mid ...](#)
... Key **Features**. ... and ESX (the hypervisor choices for the **vSphere** host), provide a ... memory compression and advanced scheduling **capabilities** of the ...
www.vmware.com/products/vsphere/mid-size-and-enterprise-business/features.html



VMware Search | Issues: Relevancy of Results

- No spellcheck

Search Results

Search VMware

stand alone conveter

Search

Results 1 - 2 of about 2 for stand alone conveter.

[VMware Communities: import p2v conversion wizard not...](#)

... Hello. Are you using the standalone Converter or the vCenter plugin on the vCenter server? ... On my PC it's the stand alone. ...
communities.vmware.com/thread/229643

[VMware Communities: 2003 hot clone, converter stops at 2%.. ...](#)

... Constant. No matter if I go direct to ESX server or to Virtual Center or to do stand alone. Check basic network: ... (By Converter Application I think your ...
communities.vmware.com/message/824474

In order to show you the most relevant results, we have omitted some entries very similar to the 2 already displayed. If you like, you can [repeat the search with the omitted results included](#).



VMware Search | Issues: Relevancy of Results

- Search phrases were not being interpreted

Search Results

Search VMware smart card configuration

Search

Results 1 - 10 of about 923 for smart card configuration.

[VMware KB: Smart card removal behavior does not work ...](#)

... Administrator, click View **Configuration** > Servers. Select the View Connection Server instance and click Edit. Verify that **Smart card** authentication is ...
kb.vmware.com/kb/1024022

[VMware KB: Unable to connect to View Desktops using RDP](#)

... Connecting to your VMware View virtual desktops via Microsoft Remote Desktop Protocol (RDP) takes some **configuration** to be successful. ...
kb.vmware.com/kb/1028711

[[More results from kb.vmware.com/kb](#)]

[PDF] [Smart Card Certificate Authentication with VMware® View™ ...](#)

... The middleware or driver installed on the virtual desktop • **Smart card** enabled within View Administrator **configuration** ...
www.vmware.com/files/pdf/VMware-View-SmartCardAuthentication-WP-EN

Search Results

Search VMware "smart card configuration"

Search

Results 1 - 2 of about 2 for "smart card configuration".

[PDF] [VMware View™ 4](#)

... information • The video clip, [Certificate/Smart Card Configuration](#) for VMware View, at: <http://www.vimeo.com/7427297> ...

www.vmware.com/files/pdf/VMware-View4-Deployment-Guide-Q309.pdf

[VMware View 4 Deployment Guide](#)

... It covers sample use cases of upgrade, **smart card configuration**, View configuration with NAS, and end to end monitoring for VMware View PCoIP. ...
www.vmware.com/resources/techresources/10088



VMware Search | Issues: Relevancy of Results

- Compound and separate words returned different results

Search Results

Search VMware Search

Search

Results 1 - 10 of about 566 for vcenter stand alone converter.

[VMware KB: Collector is unable to receive WMI probing tasks ...](#)
... Management Interface (WMI) probing tasks from the VMware vCenter Application Discovery Manager (ADM) aggregator or stand-alone engine. ...
kb.vmware.com/kb/1023638

[VMware KB: Converting a machine fails with the error: the ...](#)
... bit guests. Symptoms. Using vCenter Converter Stand Alone or the vCenter Converter Plug-in to convert a machine fails; ...
kb.vmware.com/kb/1020708

[[More results from kb.vmware.com/kb](#)]

[VMware Communities: Scheduled Task for VM Stand-Alone...](#)
... Jun 18, 2009 9:02 AM. Scheduled Task for VM Stand-Alone Converter. Hi All. ... Re: Scheduled Task for VM Stand-Alone Converter. ...
communities.vmware.com/thread/216566

[VMware Communities: Vmware Converter Stand Alone ...](#)
... VMware Converter Stand Alone trouble. Hello, ... 1. Apr 15, 2010 3:57 AM in response to: Medkorp2k. Re: Vmware Converter Stand Alone trouble. ...
communities.vmware.com/message/1515138

Search Results

Search VMware Search

Search

Results 1 - 10 of about 7370 for vcenter standalone converter.

[VMware vCenter Converter Standalone Documentation](#)
VMware. VMware vCenter Converter Standalone 4.x Documentation. ... VMware vCenter Converter Standalone 3.x Documentation. ...
www.vmware.com/support/pubs/converter_pubs.html

[VMware Documentation](#)
... VMware vShield Products; VMware vCenter Converter Standalone; VMware Server. VMware Administration Automation ...
www.vmware.com/support/pubs/

[[More results from www.vmware.com/support/pubs](#)]

[VMware vCenter Converter Standalone](#)
VMware Download VMware vCenter Converter Standalone. ... Other versions of VMware vCenter Converter Standalone: 3.0. Related Resources. ...
downloads.vmware.com/d/info/datacenter_downloads/vmware_vcenter_converter_standalone/4_0



VMware Search | Issues: Relevancy of Results

- Plural and singular words returned different results

Search Results

Search VMware

Results 1 - 8 of **about 8** for error messages.

[VMware KB: Calling vicfg-cfgbackup -r Results in Error ...](#)
The VMware Knowledge Base provides support solutions, **error messages**, and troubleshooting guides. Knowledge Base. ...
kb.vmware.com/kb/1003321

Search Results

Search VMware

Results 1 - 10 of **about 2860** for error message.

[VMware KB: Benign Error Message on initrd Recreation ...](#)
... DT_KB_1_1. Benign **Error Message** on initrd Recreation During Upgrade to ESX Server 3.5 Update 1 or higher Using esxupdate. Details. ...
kb.vmware.com/kb/1004321



VMware Search | Issues: Relevancy of Results

- Old information was returned

Search Results

Search VMware

Search

Results 1 - 10 of about 2410 for vmware workstation 6.5 windows 7.

VMware: VMware Workstation Zealot: Windows 7 RC on ...

... May 04, 2009. **Windows 7 RC on VMware Workstation 6.5.2.** ... I want to try install **Windows 7** on **VMware Workstation 6.5** or greater editions. Thanks. ...
blogs.vmware.com/workstation/2009/05/windows-7-rc-on-vmware-workstation-652.html

VMware Communities: VMware Workstation

... for you. This course covers the fundamentals of **VMware Workstation 7** and should take about 90 minutes! You will need ...
communities.vmware.com/community/vmtn/desktop/workstation

VMware: VMFN Blog: Windows 7 RC on VMware Workstation ...

... May 05, 2009. **Windows 7 RC on VMware Workstation 6.5.2.** ... **VMware: Workstation Zealot: Windows 7 RC on VMware Workstation 6.5.2.** ...
blogs.vmware.com/vmtn/2009/05/windows-7-rc-on-vmware-workstation-652.html

VMware KB: Licensing VMware Workstation 7.x

... code that works for both **Windows** and **Linux** ... Portal to view your **Workstation 7.x** licenses. **VMware Workstation 6.5.4** is a maintenance release for ...
kb.vmware.com/kb/1015481

VMware KB: Virtual Machine Communication Interface (VMCI) ...

... Install **VMware Workstation 6.5.2**, **Player 2.5.2**, **ACE 2.5.2** or **Server 2.0.1** ... For **Windows Vista** and **Windows 2008** select **Run as administrator** to open ...
kb.vmware.com/kb/1009826

[[More results from kb.vmware.com/kb](#)]



VMware Search | Issues: Relevancy of Results

- Very few participants noticed “Best Match”

Search Results

Search VMware fusion

Search

Results 1 - 10 of about 7860 for fusion.

→ [VMware Fusion: Run Windows on Mac, for Mac Desktop Virtualization](http://www.vmware.com/products/fusion/)
<http://www.vmware.com/products/fusion/>

Best Match

[VMware Communities: VMware Fusion® \(for Mac\)](#)

Technical resources and community for VMware Fusion with Unity for Apple Mac OS X. Skip navigation VMware VMware Fusion® (for Mac). ...
communities.vmware.com/community/vmtn/desktop/fusion

[VMware Fusion 3](#)

Download VMware Fusion 3 and let your Mac run Windows, Linux or Mac OS X Server. VMware Download VMware Fusion (for the Mac). ...
downloads.vmware.com/d/info/desktop_downloads/vmware_fusion_for_the_mac/3_0



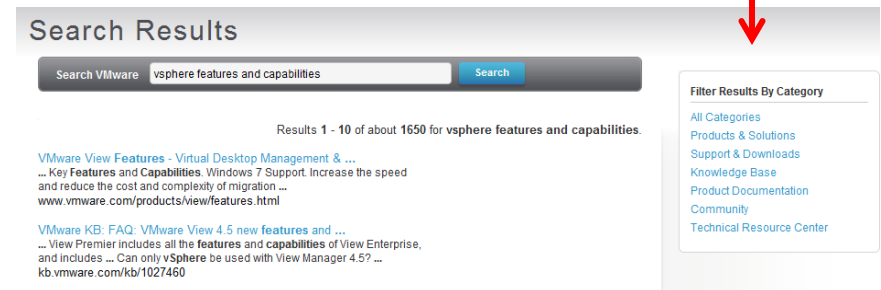
VMware Search | Relevancy – Summary

- Interpretation of search string seems to be biggest issue
- Where the keywords fall in the result listing is important
 - Most participants scan the header first for their keywords
- Proximity of keywords to each other was important
 - Participants liked to see the words close together
 - Some search strings were expected to be interpreted as phrases
- A few participants mentioned more “intelligent” or contextual search
 - Ability to pick out keywords and provide specific results
 - Similar to Best Match display
- Participants paid attention to
 - Version numbers
 - Dates



VMware Search | Issues: Managing Result Sets

- There was no apparent sorting of results
 - Expectation was: Relevancy
- Some participants wanted to view more results per page
- Only 8/20 participants were aware of and used Category Filters
 - Highly appreciated by all
 - Lacking visual context
 - Unsure where desired content was located
- Content Aggregation was appreciated by all
 - Participants wanted better indication of where listing came from



VMware Search | Google

- All participants use Google as a general search engine
- Five participants indicated they usually begin a browser session, with a Google search
- Many participants indicated it depends what they are looking for, whether they go to VMware or Google first
- Five participants indicated they will revert to Google if they can't find their information on the VMware site
- Searches performed in study
 - Eight out of 13 participants preferred the Google results over VMware
- There was a general preference for Google, based on several points
 - Not a concern –
 - Not competing with Google
 - Not likely to change user behavior
 - Competing with 3rd party sites, and getting click through
 - Can address users leaving VMware for Google



VMware Search | Recommendations - Relevancy

- Update “Best Match”, with a different visual treatment
 - Update UI: More unique to stand out, or blend in as top result
 - Identify additional trigger words
 - Try to trigger as part of phrases, not stand-alone
 - Provide sub-links
 - Uses GSA Key Matches
- Activate Spellcheck (GSA)
 - May Address compound words
- Give higher ranking to product names
 - May utilize GSA Metadata Biasing
- Include searches for synonymous terms
 - Address Compound terms (search both versions)
 - GSA Query Expansion



VMware Search | Recommendations - Relevancy

- Search keywords as a phrase, in addition to individual words
 - Give phrase results higher ranking
- Give higher ranking to words found closer together
- Give higher ranking to terms found in headers
- Include singular versions of plural words in search query
- Improve display of product version number
 - If product is a highlighted keyword, include the version number in highlighted text
- Display date of publication or last update
- Consider a Ranking display
 - Relevance
 - Helpfulness
 - Popularity**
 - Only consider after other relevancy issues are addressed



VMware Search | Recommendations – Content Aggregation

- Reposition Category Links to the left side of the page
- Indicate what category is selected
 - Including the default “All Categories”
- Use more distinctive categories
 - “Products & Solutions” / “Products”
 - “Downloads & Support” / “Downloads”
- Provide ability to select multiple categories (GSA)
- Separate out (category) links that have different behavior
 - “Community” link navigates away from page
- Create visual treatment to indicate category of each result listing
 - Color Scheme, Icons, Grouping



VMware Search | **Additional Issues**

- Provide Search History – many repeat visitors
- Update the treatment of “more results from...”
 - Draw attention and clarify functionality
 - Indented text – unclear why
 - (Host Crowding Option in GSA)
- Search suggestions
 - Avoid auto-populating

Search Results

Search VMware

mac osx server Suggestions

mac osx on windows 7

mac osx player

mac osx virtual machine

mac osx vmware

mac osx 10.6

mac osx download

mac osx downoload

mac osx client

mac osx vmware workstation

1 - 10 of about 3860 for mac.

Best Match

[VMware Fusion: Run V...](#)
<http://www.vmware.com>

[VMware Communities](#)
Technical resources ar...

Mac OS X. Skip navigation VMware VMware Fusion® (for Mac). ...
communities.vmware.com/community/vmtn/desktop/fusion

Search Results

Search VMware

Results 1 - 10 of about 4160 for vsph

[VMware KB: Unable to download the vSphere Client from an ...](#)
... DT_KB_1_1. Unable to download the vSphere Client from an ESX/ESXi 4.1 host. Symptoms. Downloading vSphere Client ...
kb.vmware.com/kb/1029925

[VMware KB: vSphere Client does not open on any Windows ...](#)
... Perform one of these two options to correct the issue: **Download** and install vSphere Client 4.0 Update 1 (build 208111) or Update 2 (build 258672 ...
kb.vmware.com/kb/1022611

[\[More results from kb.vmware.com/kb \]](#)

[VMware vSphere 4 Documentation: ESX, ESXi, and vCenter ...](#)
VMware. VMware vSphere 4 Documentation. Learn about vSphere 4. ...
www.vmware.com/support/pubs/vs_pubs.html



VMware Search | Technical Review

- GSA Configuration
 - Crawl Patterns
 - Improper specificity may exclude URLs
 - Case Insensitive URL Pattern Matching
 - Trusted IP Addresses
 - Additional IP addresses to include (currently only 4)
 - Key Matches
 - Direct users to key web pages – even those not indexed
 - Keyword, phrase, exact match
 - Result Biasing
 - Source (URL)
 - Date
 - Metadata



VMware Search | Technical Review

- GSA Configuration (con't)
 - Query Expansion
 - Add terms to query, based on user submitted terms
 - Retrieval Errors
 - Currently 22,000 URLs
 - Identify and resolve root cause
 - Full architect review and diagram – further identification
 - Excluded URLs
 - 6,000 on vmware.com (and other properties)
 - 865,000 on communities.vmware.com
 - Intentionally excluded?
 - Don't match defined crawl patterns?



VMware Search | Technical Review

- Architecture
 - Develop detailed architecture diagram
 - Visibility of crawling activities
 - Identify Infrastructure issues vs. GSA issues



VMware Search | Next Steps

- Benchmark / Monitor Current Usage
 - Survey Results (GSA)
 - Web Traffic
 - Use of Category filters
 - Use of “More results from...”
 - Use of “Next page”
 - Click-Thru Rate: Results (*increase*)
 - Search-Again Rate
 - Abandoning Search: Navigating (*decrease*)
 - Abandonment Site (*decrease*)



VMware Search | Next Steps

- Google Search Appliance
 - Upgrade Latest Version
 - Resolve Conflicts
 - Resolve Errors
 - Validate Settings
 - Turn on Spellcheck
 - Implement Query Expansion
 - Update Category Terminology



VMware Search | Next Steps

- Create Design Concepts
 - Collect user feedback – usability study
 - Refine designs as necessary
- Implement Final Design
 - Validate updates with user feedback
 - Surveys (user satisfaction)
 - Web traffic analysis



***“I haven't given up on search completely.
If they could improve it, that would be great.” (P 2)***

