



metaparadigm

# Running Untrusted Web Services in User Mode Linux

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<http://oss.metaparadigm.com/uml/>

# Presentation Overview

- **What is UML**
- **Patching the host kernel for SKAS mode**
- **Compiling the User Mode Linux guest kernel**
- **Creating images to run in User Mode Linux**
- **Setting up Networking**
- **Apache host to UML proxy Recipe**

# What is UML

## • UML (User Mode Linux)

- Linux ported to the POSIX/Linux architecture
  - rather than a low level machine architecture such as directly using the processors MMU (Memory Management Unit), UML however uses the POSIX/Linux APIs such as mmap to perform these functions
- Concept of Host and Guest Kernel
- Available in 2.6.11 with no patches
  - used to require patches to compile
- Special mode called SKAS (Seperate Kernel Address Space) mode available that improves performance
  - needs patched for host kernel
- <http://user-mode-linux.sourceforge.net/>



# Patching host kernel for SKAS

- **The latest SKAS and SYSCALL emulation patches can be found here**
  - <http://www.user-mode-linux.org/~blaisorblade/patchlist.html>
  - <http://www.user-mode-linux.org/~blaisorblade/patches/skas3-2.6/>
- **The machine running the demos is running a 2.6.11.6 kernel with this patch applied:**
  - `.../~blaisorblade/patches/skas3-2.6/skas-2.6.11-v9-pre1`
- **You must enable “/proc/mm support” under the “Processor Type and Features” menu in kernel menuconfig**
  - or add “`CONFIG_PROC_MM=y`” to your kernel `.config`



# Compiling the guest Kernel

- You can download and build usermode linux but remember it is a different architecture
- You must always use the ARCH= variable on the make commands:
  - `make ARCH=um menuconfig`
  - `make ARCH=um linux`
- This will produce an executable `./linux`

# Setting up Networking

- **Demonstration of my cool scripts**
- **Available for download after presentation**

# Apache Proxy Config Recipe

```
ProxyRequests On
```

```
<Directory proxy:*>  
    Order deny,allow  
    Deny from all  
</Directory>
```

```
<Directory proxy:http://lugs-uml/>  
    Order allow,deny  
    Allow from all  
</Directory>
```

```
<VirtualHost 10.1.0.82:80>  
    ServerName wiki.lugs.org.sg  
    ProxyPass / http://lugs-uml/  
    ProxyPassReverse / http://lugs-uml/  
</VirtualHost>
```



# Scripts

- **Scripts available here soon:**
  - <http://oss.metaparadigm.com/uml/>

Thank You for listening,

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