Development Platform

Related terms:

Information Technology, Internet of Things, Intranets, Cloud Computing, Application Development

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Introduction

Daniel Aarno, Jakob Engblom, in Software and System Development using Virtual Platforms, 2015

Platform Development

Platform development refers to the development of the fundamental software that makes hardware work and that provides a platform for application development. As discussed before, this includes the development of firmware, boot loaders, and BIOS, as well as operating system kernels and BSPs. In addition to such hardware-interface code, it also usually involves integrating various forms of middleware software on top of the operating system. The middleware provides the crucial domain-specific specialization of the generic operating system platform, such as distributed communications systems, fault-tolerance mechanisms, load balancing, databases, and virtual machines for Java, C#, and other languages. The complete software stack can be developed and run on Simics.

Debugging low-level code in Simics is a much nicer experience than using hardware, especially compared to early unstable prototype hardware. As discussed in depth in Chapter 3, Simics enables the debugging of firmware and boot code from the first instruction after power on, and makes it easy to debug device drivers and interrupt handlers. When drivers and the operating system are up, Simics can be used to integrate middleware and services on top of the operating system, taking the setup all the way to a complete running platform, ready for application developers (Tian, 2013).

In larger organizations, there is usually a dedicated platform team who is responsible for developing and delivering ready-to-use integrated platforms for application developers. Virtual platforms can be used to efficiently deliver the platform to application developers, containing both hardware and software, booted, configured, and ready to go. With a virtual platform, a nightly build can become a nightly boot, using checkpoints as discussed in Chapter 3 to deliver a ready-to-use platform to the application development teams.

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Three-Dimensional Bone Angle Quantification

Jens A. Richolt, ... Michael B. Millis, in Handbook of Medical Imaging, 2000

3D Graphics Measurement Tool

The software development platform for the interactive 3D measurement tool is the Tcl/Tk language in combination with the programming languages C and C++. Tcl/Tk is a script language that provides the capabilities of standard C/C++ coding and supports socket programming, input/output handling, looping, and mathematical manipulation. Tk is a popular extension of Tcl designed for graphical user interface (GUI) construction with convenient features for interface layout and associated event handling. Both Tcl and Tk have interfaces that enable developers to implement custom C/C++ code for arbitrary extensions. For 3D computer graphics representation, a graphics programming environment such as VTK can be used along with a graphics library such as OpenGL (Sun Microsystems).

The 3D graphics part of the interface depicts a scene of the 3D models and an axis tool that consists of an axis and a plane perpendicularly placed on one end of the axis. Point of view and zoom of the whole 3D scene can be changed by direct mouse interaction on the display window. In addition, the axis tool can be positioned independently of the anatomical bone structures. A GUI window allows this manipulation in six degrees of freedom. One can determine an anatomical axis on the 3D bone structures interactively by positioning the axis tool along the presumed anatomical axis. A mouse click on the save button in the GUI window stores the vector information for the appropriate anatomical axis. Buttons and anatomical 3D structures are accordingly color-coded to prevent user errors. After all necessary axes are determined, the required angles can be computed and displayed.

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A Study of the Effectiveness Abs Reliability of Android Free Anti-Mobile Malware Apps

J. Walls, K.-K.R. Choo, in Mobile Security and Privacy, 2017

2.2.1 App Permissions

Android is a popular app development platform and offers open-source flexibility in an unrestricted marketplace. This has contributed to the growing availability of Android OS and also allows for an extensive API, which defines how the app interacts with most areas of the hardware functionality, such as user data, and phone settings, wireless connectivity, GPS system, and built-in digital camera.

The security of app permissions is managed through the Linux Kernel, specifically the Libraries and ART layers, and is based on isolating activities and permissions in terms of what the app is able to perform and access on the device. As each app has its own process and is managed in its own sandbox environment, apps are unable to "talk" to each other, which means no information can be shared. App permissions need to be declared in the AndroidManifest.xml file, as mentioned earlier in the Security Architecture. If such permissions are not listed within this file, then the Kernel will carry out its task of restricting, known as a "runtime exception," preventing any app from running malicious activity (Vidas et al., 2011).

According to Vidas et al. (2011), there are close to 130 app-level permissions incorporated within the Android framework that are declared before an installation occurs. The user initiates the installation and needs to accept such permissions before the installation can occur. This allows some control over what permissions are being executed by an app. However, the majority of users are not aware of how permissions work and what they are intended for. Thus, apps may compromise privileged permissions that are not required for the purpose of the app, such as location access and network access, which may have an impact on the privacy, security, and vulnerability of the device (Vidas et al., 2011).

The development of an Android app is based on four protection levels. The app developer can select the appropriate protection level in conjunction with Component Type permissions. The four protection levels are Normal, where minimal permissions are needed; Dangerous, where a substantial risk is present and therefore more permissions are requested, but only user's confirmation; Signature, which allows apps with the same signature permissions to talk to each other; and, finally,

SignatureOrSystem, which is a signature permission that has access to the image file system. As app permission requests are granted, the protection layers declare the app's permissions to the user for approval and grant access to the smartphone. In the event of permissions being declined, the app will not install (Ongtang et al., 2012).

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Introduction to Metasploit

David Maynor, K.K. Mookhey, in Metasploit Toolkit for Penetration Testing, Exploit Development, and Vulnerability Research, 2007

Summary

The MSF is a powerful and flexible exploit development platform. With the release of version 3.0, the framework has matured to a stage where complete security tools can be built around it. Re-written in Ruby, it now exposes APIs, which can be used to extend and modify the capabilities to incorporate the output from other tools such as Nmap and Nessus. It offers a number of interfaces—the popular *msfconsole* now extended with concurrent session and exploit execution, *msfweb* for Web-based interaction, *msfcli* for command-line execution of an exploit, and *msfd* for daemon mode exploitation. The Opcode database and the *msfopcode* utilities allow for exploits to be tweaked to suit the target environment.

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Software architecture

Xiaoyao Liang, in Ascend AI Processor Architecture and Programming, 2020

4.3.1 Introduction to functions

All toolchains are integrated in the Mind Studio development platform. Mind Studio is a Huawei Ascend AI processor-based development toolchain platform that provides processor-based operator development, debugging, tuning, and third-party operator development capabilities, as well as network migration, optimization, and analysis capabilities. It brings great convenience for users to develop applications. Mind Studio provides developers with a variety of functions such as operator de-

velopment, network model development, computation engine development, and application development through web pages:

velopment, network model development, computation engine development, and application development through web pages:

(1) For operator development, Mind Studio provides a full set of operator development and tuning capabilities and supports the operation of analog operators in real-world processors. The toolchain provided by Mind Studio can also be used for third-party operator development, which reduces the threshold for operator development, improves the efficiency of operator development and debugging, and effectively enhances product competitiveness.

(2) For the development of the network model, Mind Studio integrates offline model conversion tools, model quantization tools, model precision comparison tools, model operation performance analysis tools, and log analysis tools to improve the efficiency of network model migration, analysis, and optimization.

(3) For computing engine development, Mind Studio provides a visual drag-and-drop programming technology for the computational engine and large number of automatic code generation technologies to reduce the effort of the developer and preset the algorithm engine such as ResNet-18 [9], etc., adding the developer's proprietary algorithm engine and porting efficiency.

(4) For application development, Mind Studio integrates various tools such as Profiler and Compiler to provide developers with a graphically integrated development environment, which can be used for project management and compilation through Mind Studio. Full-process development such as debugging, simulation, performance analysis, etc., greatly improve development efficiency.

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Cloud Service Models

Cloud Service Models

Derrick Rountree, Derrick Rountree, Ileana Castrillo, in The Basics of Cloud Computing, 2014

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PaaS Responsibilities

PaaS Responsibilities

In a PaaS offering, responsibilities are distributed between the service provider and the customer (see Figure 4.9).

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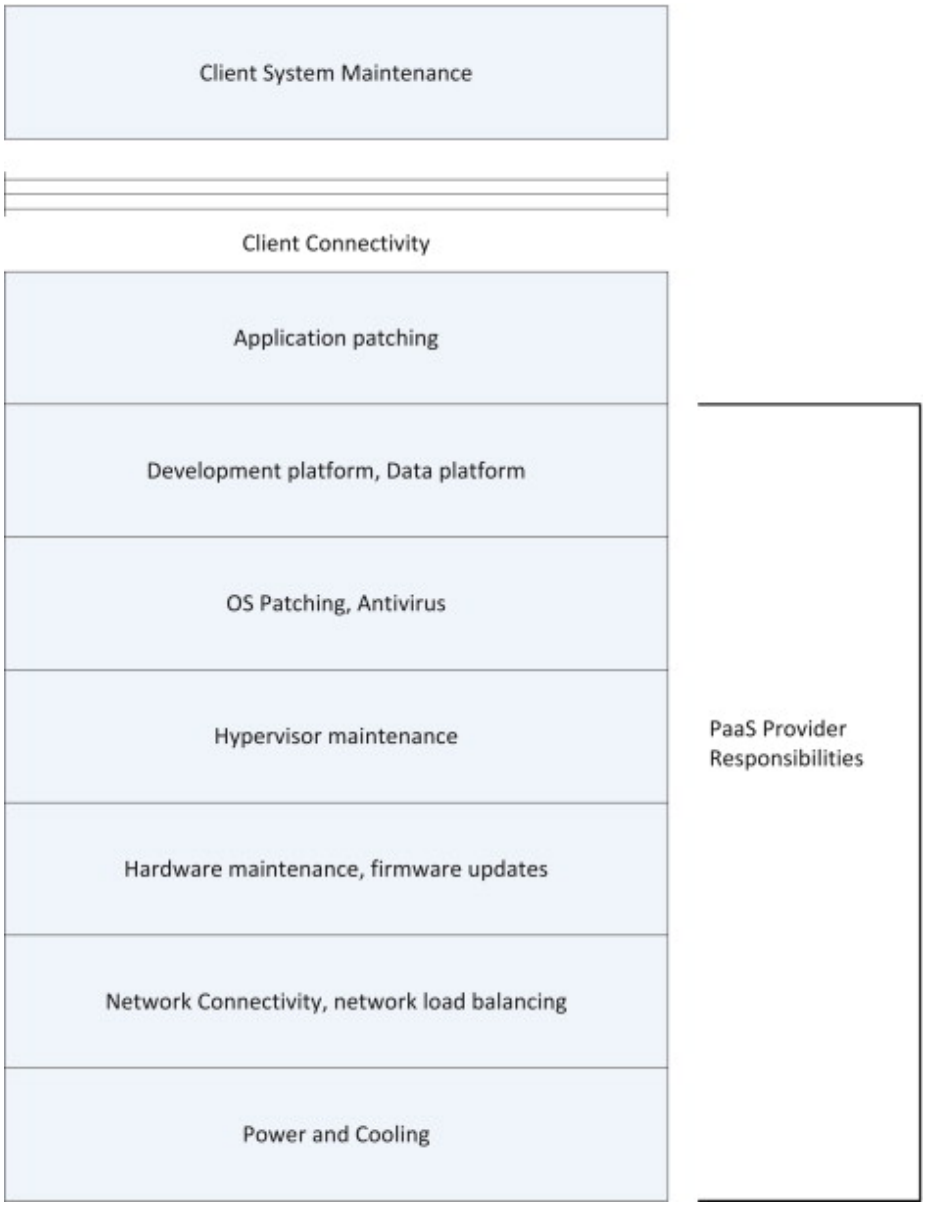
Client System Maintenance
Client Connectivity
Application patching
Development platform, Data platform
OS Patching, Antivirus
Hypervisor maintenance
Hardware maintenance, firmware updates
Network Connectivity, network load balancing
Power and Cooling
PaaS Provider
Responsibilities

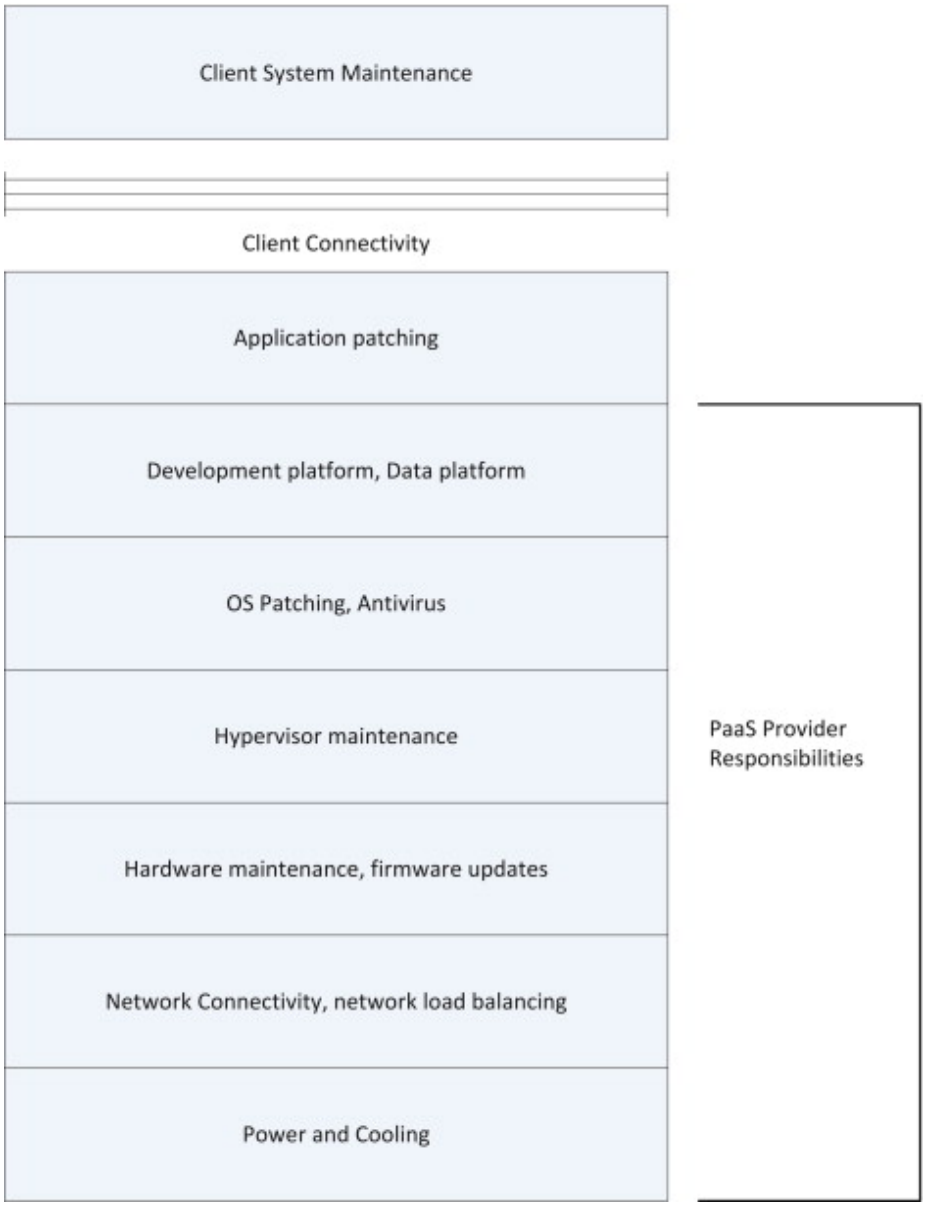

Figure 4.9. PaaS Responsibilities

The provider will take care of everything at the development platform level and below. The provider will make sure the operating system is patched and up to date when it's delivered to you. The provider will also provide operating system updates that will be rolled out to you.

In a PaaS implementation, the customer is generally responsible for everything above the operating system and development platform level. You will be responsible for installing and maintaining any additional applications you will need. This includes application patching and application data. The database platform may be supplied for you, but you will be responsible for the data. In a PaaS implementation, you will usually have direct access to the data. If there are any problems with the data, you will be able to implement any fixes you might need to perform.

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SQL Server Analysis Services

SQL Server Analysis Services

In Designing SQL Server 2000 Databases, 2001

PivotTable Service

PivotTable Service is an interface for applications to use Analysis Services. It is an OLE DB provider for data mining and multidimensional data access. PivotTable Service allows client applications to browse, analyze, and update data from cubes managed by an Analysis Server. PivotTable Service even allows you to store data in a client computer. This last feature is available because PivotTable Service functions as a local database server. This duality also provides other benefits. Some data analysis can be performed at the client without the need to connect to an Analysis Server, and results can be cached on the client, helping to keep traffic low and provide performance improvements.

PivotTable Service can be used from a number of development platforms, including Microsoft Visual Basic, Visual C++, Visual J++, Active Data Objects Multidimensional (ADO MD) object library, or the OLE DB for OLAP Component Object Model (COM) interface. Detailed discussion of the development of such applications is outside the scope of this book. The PivotTable Service has acquired some interesting new capabilities. Among them are:

- **Internet connectivity** It is now possible for client applications using the PivotTable Service to gain access to Analysis Services using HTTP. More detail on the specific features is provided later in this chapter.
- **Data-mining support** PivotTable Service has been extended to support the new data-mining capabilities of Analysis Services. Both Microsoft Decision Trees and the Clustering algorithm are supported.
- **Altering cube structure** Altering cube structure is now supported by PivotTable Services, thereby allowing client applications to make changes via Data Definition Language (DDL). Such changes could include changing or adding dimensions members, moving dimension members, or removing a dimension member.

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Migrating to the Cloud

In Migrating to the Cloud, 2012

Why Oracle?

clustering of multiple instances accessing a single Oracle database. Recently, other database vendors have begun to offer this type of solution as well.

Active-active
clustering

	Yes	Active-active clustering	Yes (DB2 PureScale)	No	Yes	Yes (via Cluster edition)	No	Yes (DB2 PureScale)	No
Integration with in-memory cache database and flash cache	Yes	Integration with in-memory cache database and flash cache	No	No	Yes	No	No	No	No
Compression	Yes (OLTP/DW/Archive)	Compression	Partial	No	Yes (OLTP/DW/Archive)	No	No	Partial	No
Transparent database encryption	Yes	Transparent database encryption	Partial	No	Yes	No	No	Partial	No
Unified management capability	Yes	Unified management capability	No	No	Yes	No	No (command-line utilities)	No	No

Many organizations wonder why they would migrate to Oracle instead of to Microsoft SQL Server or IBM DB2, as it appears it may be much easier to migrate to these other databases than to Oracle. As Table 1.3 illustrates, Oracle is the only database that truly offers significant advantages over others, such as row-level locking, scalability, and virtualization. All other databases are identical and offer no real advantages over one another. So, it may not be worth the migration effort to these databases, considering the effort involved in the migration process.

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> Read full chapter

Putting It All Together

In The Best Damn Exchange Server Book Period, 2007

In The Best Damn Exchange Server Book Period, 2007

Classic ASP Requests

ASP requests are slightly trickier in IIS 7.0 since they require two modules installed for one feature. However, if you are using ASP pages, you can remove at least one module, and possibly two, from the request pipeline. To determine if your Web application is using ASP, search your site directory (or directories) on disk for files with the .asp extension. Also, if you have access to your IIS 6.0 server, you can view the Script Maps, as shown in Figure 18.2.

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File Edit Format View Help

```
ScriptMaps                          : {LIST}  (51 Items)
   ".asp,C:\WINDOWS\system32\inetsrv\asp.dll,5,GET,HEAD,POST,TRACE"
   ".cer,C:\WINDOWS\system32\inetsrv\asp.dll,5,GET,HEAD,POST,TRACE"
   ".cdx,C:\WINDOWS\system32\inetsrv\asp.dll,5,GET,HEAD,POST,TRACE"
   ".asa,C:\WINDOWS\system32\inetsrv\asp.dll,5,GET,HEAD,POST,TRACE"
   ".idc,C:\WINDOWS\system32\inetsrv\httpodbc.dll,5,GET,POST"
   ".shtm,C:\WINDOWS\system32\inetsrv\ssinc.dll,5,GET,POST"
   ".shtml,C:\WINDOWS\system32\inetsrv\ssinc.dll,5,GET,POST"
   ".stm,C:\WINDOWS\system32\inetsrv\ssinc.dll,5,GET,POST"
   ".asax,C:\WINDOWS\Microsoft.NET\Framework\v2.0.50727\aspnet_isapi.dll,5,GET,HEAD,POST,DEBUG"
   ".ascx,C:\WINDOWS\Microsoft.NET\Framework\v2.0.50727\aspnet_isapi.dll,5,GET,HEAD,POST,DEBUG"
   ".ashx,C:\WINDOWS\Microsoft.NET\Framework\v2.0.50727\aspnet_isapi.dll,1,GET,HEAD,POST,DEBUG"
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   ".rem,C:\WINDOWS\Microsoft.NET\Framework\v2.0.50727\aspnet_isapi.dll,1,GET,HEAD,POST,DEBUG"
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   ".cd,C:\WINDOWS\Microsoft.NET\Framework\v2.0.50727\aspnet_isapi.dll,5,GET,HEAD,POST,DEBUG"
   ".adprototype,C:\WINDOWS\Microsoft.NET\Framework\v2.0.50727\aspnet_isapi.dll,5,GET,HEAD,POST,DEBUG"
   ".lddprototype,C:\WINDOWS\Microsoft.NET\Framework\v2.0.50727\aspnet_isapi.dll,5,GET,HEAD,POST,DEBUG"
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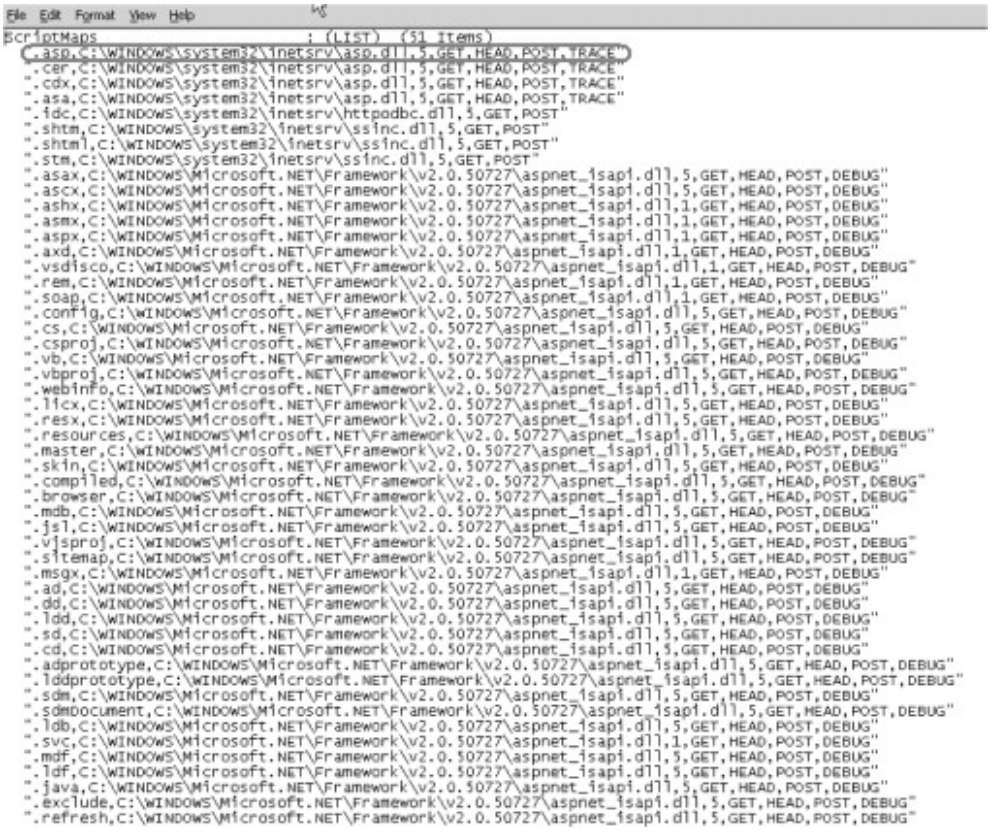


Figure 18.2. IIS 6.0 Default Installed ScriptMaps

Unlike previous versions of IIS, IIS 7.0 exposes the ISAPI development platform in a single module. Any ISAPI extension built against the ISAPI platform will require that this module be installed to work. Installed as a WAI extension that will take advantage of this module, and if not used, can safely remove the module.

Module Name	Module Name	Handler Name	Default IIS 7.0 Install Status	Handler Name
IsapiModule	IsapiModule	NA	Not Installed	NA
		ASPClassic	Not Installed	ASPClassic
		Isapi-dll	Not Installed	Isapi-dll

You can remove the ASPClassic module by doing the following:

1. Click **Start | Administrative Tools | Internet Information Services (IIS) Manager.**
2. At the server level, click **Handler Mappings.**
3. Click **ASPClassic**, and in the **Actions** pane, click **Remove.**
4. Click **Yes** to confirm the removal.

To remove IsapiModule as well, do the following:

1. Click **Start | Administrative Tools | Internet Information Services (IIS) Manager.**
2. At the server level, click **Modules.**

3.

3. Click **IsapiModule**, then in the **Actions** pane, click **Remove**.
4. Click **Yes** to confirm the removal.

Some Independent Advice

You should cautiously move forward when deciding whether to remove IsapiModule from IIS 7.0. It is safer to understand the ISAPI extensions (for example, handler) that are safe to remove, rather than removing this module. If you choose to remove this module, keep in mind that doing so will disable any ISAPI extension on the system and cause a configuration error.

> Read full chapter

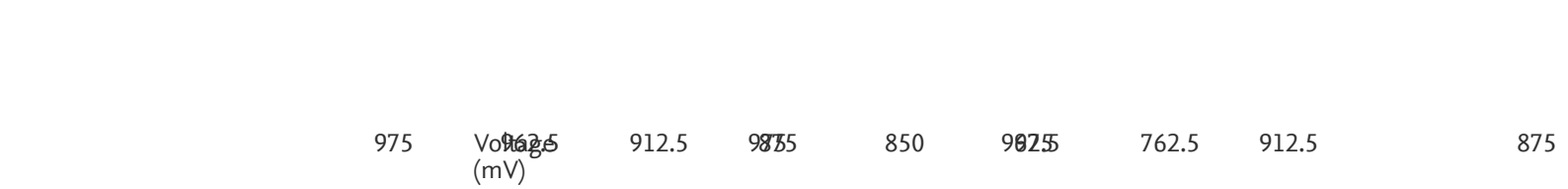
Power management of mobile GPUs

T. Mitra, ... A. Pathania, in Advances in GPU Research and Practice, 2017

3.2.1 Hardware environment

While the gaming workloads were evaluated on the *Odroid XU+E* development platform, we explore the GPGPU applications on the *Odroid XU3* [34] mobile application development platform shown in Fig. 12. This platform features the *Exynos 5 Octa (5422)* HMPSoC comprising a quad-core *Cortex-A15* CPU cluster, a quad-core *Cortex-* A7 CPU cluster, and a hexa-core (arranged in two clusters of 4-core and 2-core) *Mali-T628* GPU. Unlike the *Exynos 5 Octa (5410)* HMPSoC in the *Odroid XU+E* platform, the *Exynos 5 Octa (5422)* HMPSoC allows all the eight CPU cores to function simultaneously. This feature is extremely important for GPGPU applications in order to employ all eight cores of the two CPU clusters for OpenCL execution, unlike only one CPU cluster being available at any given time in the *Exynos 5 Octa (5410)* HMPSoC. Furthermore, all eight cores of the CPU and four cores (only the four-core cluster of this GPU supports OpenCL) of the GPU support *concurrent* execution of OpenCL kernels.

Voltage
(mV)



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