

# "The Modern Mainframe"

Pittsburgh TechFest June 10, 2017.

The internet abounds with helpful communities, blogs, and videos for technical education in operating systems, user interfaces, and coding, but it's also the source of a great deal of misinformation. For example, this quote from a recent article on LinkedIn, "... *green screen applications are completely at odds with everything we have learned about technology in the last 20 years.*" This likely refers to the z/OS operating system on #IBMz system hardware (aka "the #mainframe").

To paraphrase Shakespeare, *"There are more things in **System z**, Horatio, than are dreamt of in your philosophy."*

---

*The screen is not green.*

---

**TN3270** renders a black background just like #Linux shells under SSH, and the *"Bash on Ubuntu on Windows"* command shell. And, like SSH (black) and Windows command shells (blue), the **users may customize the background and foreground colors.**

---

*Mainframe applications are developed every day using state-of-the-art concepts and languages.*

---

*OpenStack, Blockchain, Containers, and ApacheSpark* are just a few of the technologies implemented on mainframe hardware and many mainframe applications are front-ended by *web-based* and *mobile* apps.

# "The Modern Mainframe"

Pittsburgh TechFest June 10, 2017.

---

*Traditional TN3270 on a touch device works with ISPF point and shoot fields.*

---

There are TN3270 mobile apps available for *iOS, Android and Windows* as well as *browser-based TN3270 apps*.

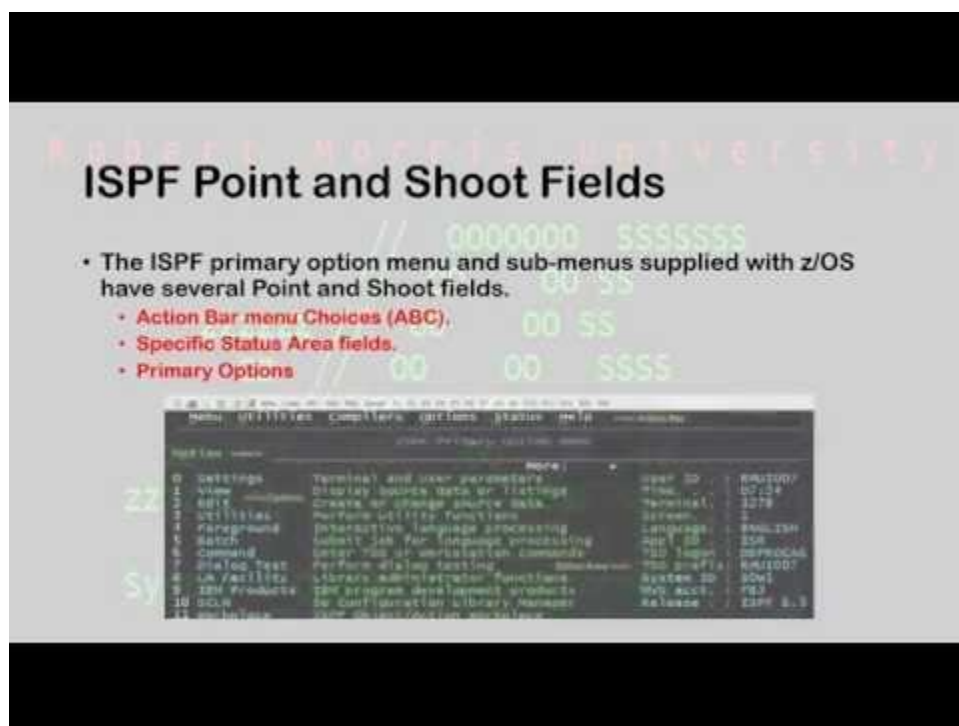


Figure 1- The Mouse and the Mainframe

[https://youtu.be/0JmAI\\_2dm1M](https://youtu.be/0JmAI_2dm1M)

---

*There are several modern IDEs for developers and administrators.*

---

**IBM IDz** has a built-in **ISPF editor**, and IDEs are typically able to use any editor installed on the desktop. Eclipse-based **IBM Explorer for z/OS** is even available to

# "The Modern Mainframe"

Pittsburgh TechFest June 10, 2017.

licensed z/OS installations and users for free! These user interfaces run on Windows, UNIX and Linux, and help facilitate mainframe **DevOps** practices.

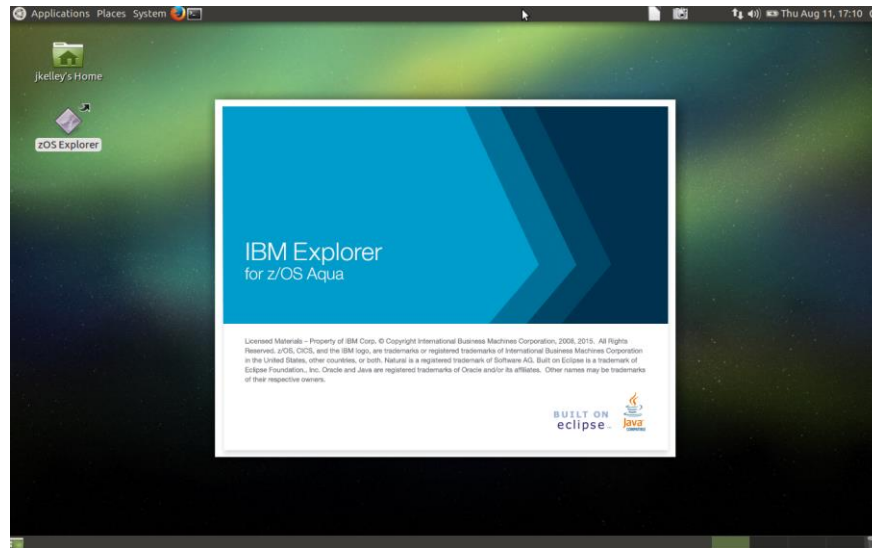


Figure 2- IBM Explorer for z/OS on Ubuntu Mate

These quotes are from an article shared on Facebook, titled "What is the future of the IBM mainframe?".

---

*"The mainframe is a combination of hardware and software that is arguably unique to all other computing offerings available in the marketplace today."*

---

**Facts:** The [z System](#) hardware is unique. IBM is a hardware manufacturer and software developer. The zEC12 features the **world's fastest processor chip** at 5.5 GHz and the current z13 is only a bit slower at 5.0 GHz. IBM reduced the speed but made up for it with other improvements. These processors offer **6 cores** and **8 cores** respectively. The z13 can be configured with **up to 141 operating system processors** (168 total) and **10 terabytes of memory**. The built-in **Logical Partitioning (LPAR)** feature can divide the hardware resources into 85 separate machines, each with its own operating system. There's also support for **Simultaneous Multi-Threading (SMT)** for **Java** and **Linux** processing cores and **Kernel-based Virtual Machine (KVM)** for **Linux operating systems**.

# "The Modern Mainframe"

Pittsburgh TechFest June 10, 2017.

For software, there are **7 distinct operating systems** that may be used on [z Systems](#). Four are unique to IBM. The **z/OS** operating system is the one most often associated with the term "mainframe". Other unique operating systems are **z/VSE**, **z/TPF**, and **z/VM**. The z/VM system is another virtualization option and may be used to host *hundreds of Linux operating systems* as virtual "guests". It is also possible to have an IBM mainframe that only runs Linux-based operating systems. **Red Hat Enterprise Linux (RHEL)**, **SUSE Linux Enterprise Server (SLES)**, and **Ubuntu** are all z System certified and may be installed in LPARs or using native KVM.

---

*[ The Mainframe]"is dependent on a skill set that is most commonly found among the Baby Boomer generation -".*

---

**Facts:** z/OS includes z/OS UNIX and supports **web services**, **Java**, and **C++**. Traditional access using z/OS TSO/ISPF is supported by TN3270 clients and **can be used with mobile devices**, but [IBM Developer for z \(IDz\)](#), an Integrated Development Environment (IDE) based on the Eclipse platform, allows developers to do their jobs using the same user interface they would use for MS-Windows, Linux, or mobile application development.

**Of course**, *Linux is Linux regardless of the hardware behind it*. Linux on z provides **Hadoop**, **Apache Spark**, **Java**, **Swift** and **containers** as would be expected of any Linux installation.

---

*"You rarely hear about the mainframe from IBM when it is discussing the future."*

---

**Fact:** IBM press kits, with references to blockchain, mobile, cloud computing, security, analytics and Watson don't tend to mention the hardware and software "behind the curtain". Of those listed above, only Watson is not backed by System z. In celebrating the 50th anniversary of the IBM 360 mainframe, the presentation on the massive transaction processing capabilities of z Systems made no mention of the z/TPF operating system which accomplished the feat.

# "The Modern Mainframe"

Pittsburgh TechFest June 10, 2017.



Figure 3- Fancy Dancing Dinosaurs

[https://youtu.be/Y4oRNak\\_Mho](https://youtu.be/Y4oRNak_Mho)

**Logos:** System z Mainframe, z/VM Bear, Linux on z: Tux the penguin, the SUSE Chameleon and Ubuntu.



John Kelley is an independent instructor and consultant based in the South Hills. As a specialist in IBM System z, and UNIX/Linux, he has worked with several large companies in the Pittsburgh area through [ProTech Professional Technical Services](#) (Turtle Creek). John has had several articles published by Enterprise Systems Media, and has presented numerous times at IBM SHARE conferences across the country.