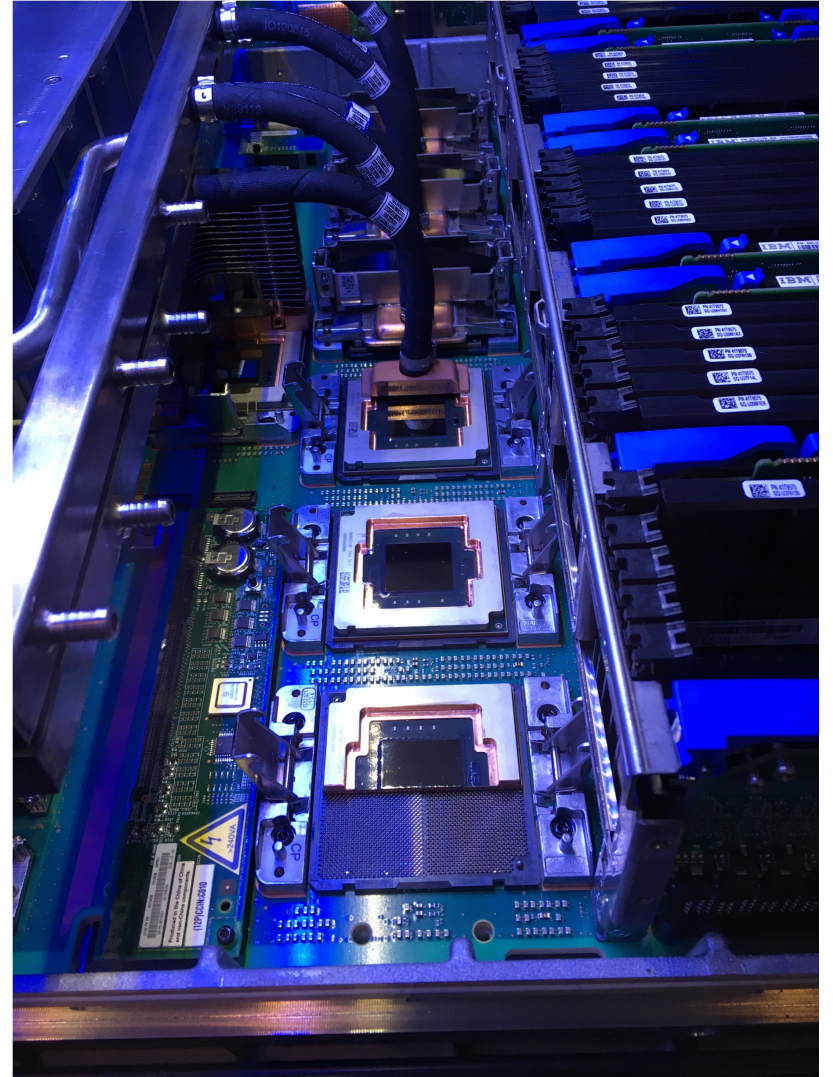
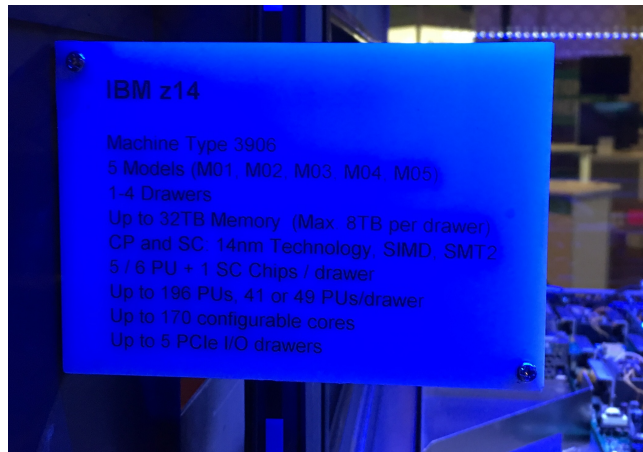




IBM **LinuxONE™**



World's leading businesses run on IBM Z



92
of the top 100
worldwide
banks



10
out of 10 of the
world's largest
insurers



23
of the top 25
US retailers



23
out of 25 of the
world's
largest airlines

processing the world's transactions & data

80 percent of the world's corporate data resides or originates on mainframes

23 billion ATM transactions per year processed by the mainframe worth more than **\$1.4 trillion**

\$6 trillion credit and debit card payments processed annually (nearly 100% of all credit card transactions)

30 billion business transactions processed on the mainframe per day

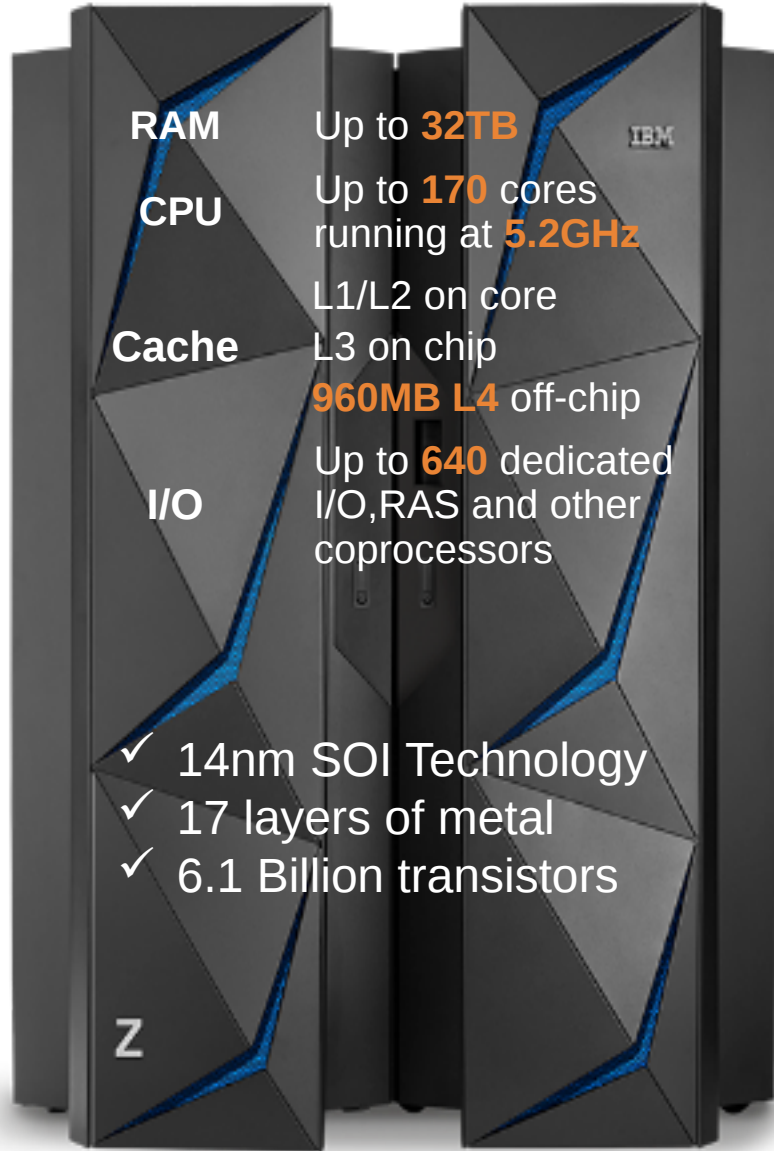
91 percent of surveyed CIOs said that new customer-facing applications are accessing the mainframe

55 percent of all enterprise applications need the mainframe to complete transactions

3 billion travelers a year; with 2x that expected by 2030 (mainframes process nearly all air travel reservations)

LinuxONE



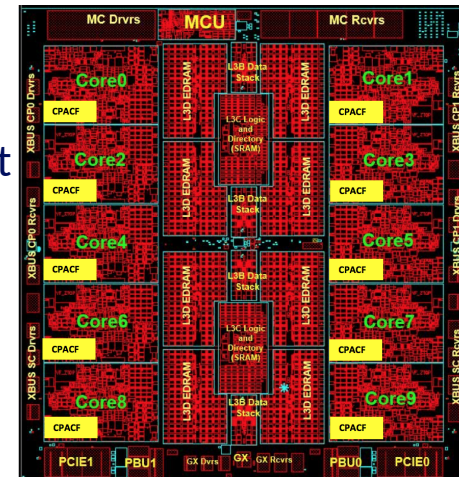
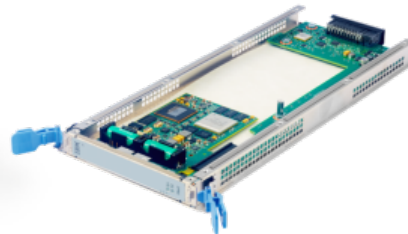


Extreme Virtualization and Scale

- Hypervisor partitioning built into firmware
 - Complete isolation – **EAL5+**
- 85 hypervisors– z/VM or KVM
 - **1k** Linux guests/hypervisor
 - **>2 million docker** containers
 - Hypervisor communication is via fast, in-memory sockets
 - **3x less latency than discrete servers**
- Non-disruptively add/remove Linux resources from Linux guests
- Non-disruptively add/remove Linux guests
- Built-in error detection and correction for high availability

Security in hardware

- Each core has its own cryptographic co-processor
- Crypto Express6S PCIe card adds additional crypto capability
 - Elliptic Curve, SHA3, Visa FPE, etc.
- Meets FIPS 140-2 level 4 , ANSI, PKI, and DK standards
- End-to-end pervasive encryption with no performance impact



The promise of open-source data serving on IBM LinuxONE

security

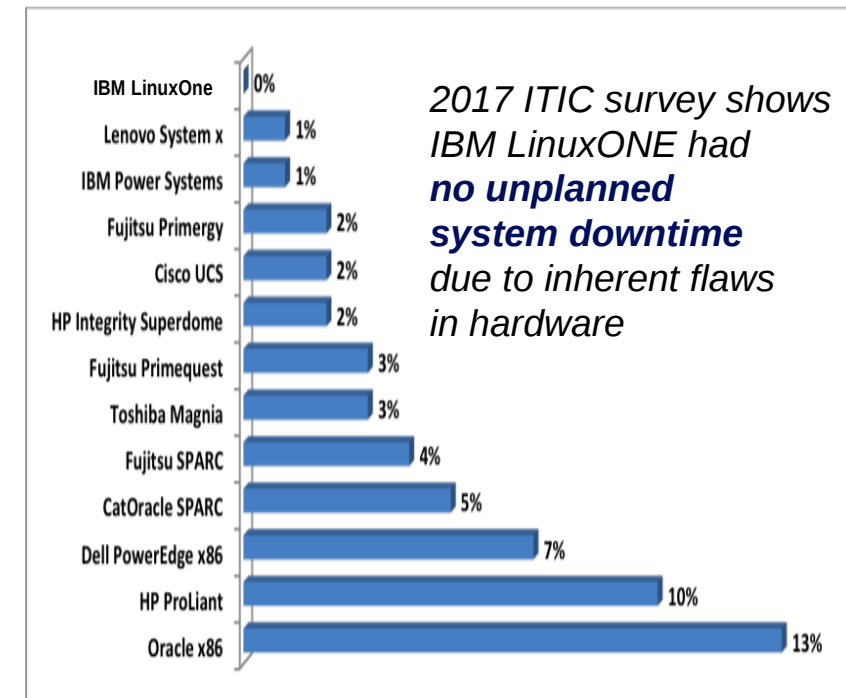
- Pervasive encryption across the entire system
- Protected-keys on LinuxONE provides significantly enhance security over open-key technology, while offering **up to 28x better performance** over standard secure-key technology
- Isolation on LinuxONE starts at the hardware ...
"What happens in a VM stays in a VM"

performance and scalability

- Scale-up a single MongoDB instance to **17 TB on a single system** without database sharding
- Run the YCSB benchmark on MongoDB with **up to 2.6x more throughput** per core
- Run the pgBench benchmark on PostgreSQL with **up to 2x more throughput**
- Pause-less Garbage Collection. **10X** shorter pause-times for Java

availability

minimal unplanned downtime



A rich ecosystem already runs on LinuxONE and IBM Z

Distributions	Hypervisors	PaaS / IaaS	Languages	Runtimes	Management	Database	Analytics
 Red Hat	 VM	 docker	 python™	 node.js	 CHEF™	 puppet	 ORACLE™ Platinum Partner  APACHE SPARK™
 SUSE	LPAR	 kubernetes		 RAILS	 ANSIBLE	 MySQL	 elasticsearch
 ubuntu <small>Supported by Canonical</small>	KVM	 IBM Cloud Private	 php 	 ZF ZEND FRAMEWORK	 SALTSTACK	 mongoDB	 Solr
Community Versions		 openstack.	 Scala	OpenJDK	 etcd	 cassandra	 TensorFlow
 debian		 okd	 Clojure	 LLVM	 Terraform	 PostgreSQL	 ANACONDA.
 openSUSE		 MESOS	 OCaml	 Apache Tomcat	 Apache Zookeeper	 MariaDB FOUNDATION	
 fedora ^f		 LXD (Ubuntu)	 JS		 vmware vRealize	 SCYLLA.	
 CentOS			 Java		 DPM	 RethinkDB	
			 Swift			 redis	
			 LuaJIT			 Couchbase	
						 Db2	



IBM LinuxONE™ Community Cloud

*Wondering how your code will run on
LinuxONE?*

The IBM LinuxONE Community Cloud provides a no charge, self-provisioned SUSE or Red Hat virtual machine on an IBM LinuxONE Enterprise Server (s390x architecture) to develop, test, and run your apps.

<https://developer.ibm.com/linuxone>

