

Information Technologies Best-Kept Secret



Marc Smith

ProTech Training

msmith@protechtraining.com

Session Objectives

To understand:

- What is this technology?
- Why is it important to Businesses?
- Who uses it?
- What can I gain from studying this technology?



Current Environment

85 Million

Global unfilled jobs

4.3 Million

in US Tech Market*

2030

** Future of Work; Global Talent Crunch*



Size Matters



Technology continues to evolve



IBM Z



What do all computers have in common?



What is a mainframe?

IT's Best Kept Secret!

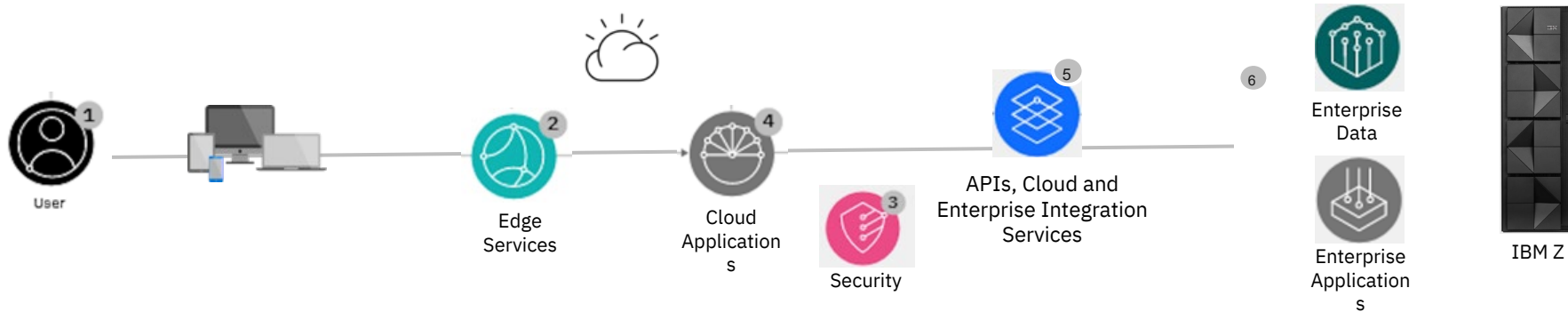




Public Network

Cloud Provider Network

Enterprise Network





World's leading businesses run on the mainframe



45

of the top 50
worldwide banks

Mainframes process

30 billion business transactions per day



8

out of 10 of the world's
largest insurers

Mainframes enable

\$6 trillion in card payments annually



7

of the top 10
US retailers

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



4

out of 5 of the world's
largest airlines

91 percent of CIOs said new customer-
facing apps are accessing the mainframe

Growing IBM Z & LinuxONE Open-Source Software Ecosystem

Linux Distributions & Virtualization



Linux Community Versions



Networking & Monitoring



More: hub.docker.com

Cloud & Container Services

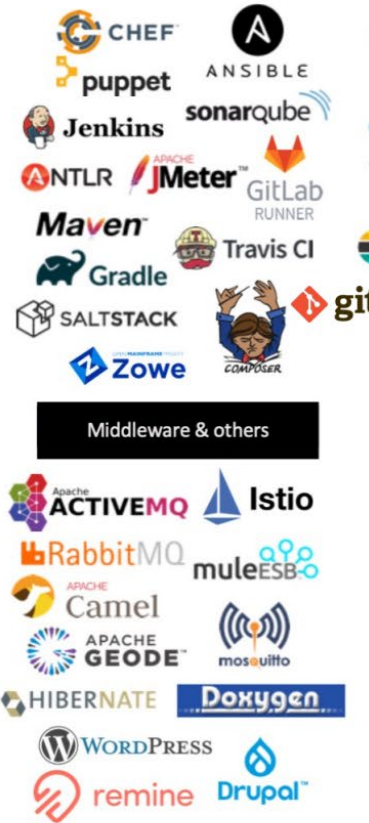


www.ibm.com/community/z/open-source-software/

Languages & Runtimes



DevOps/Automation



Big Data, Observability, Analytics



Databases & Storage



What happens in one second?



1,200
Instagram
Posts



10,000
Tweets



98,000
Videos



106,000
Searches



1,157,407
CICS Transactions
on a Mainframe

A real-world example

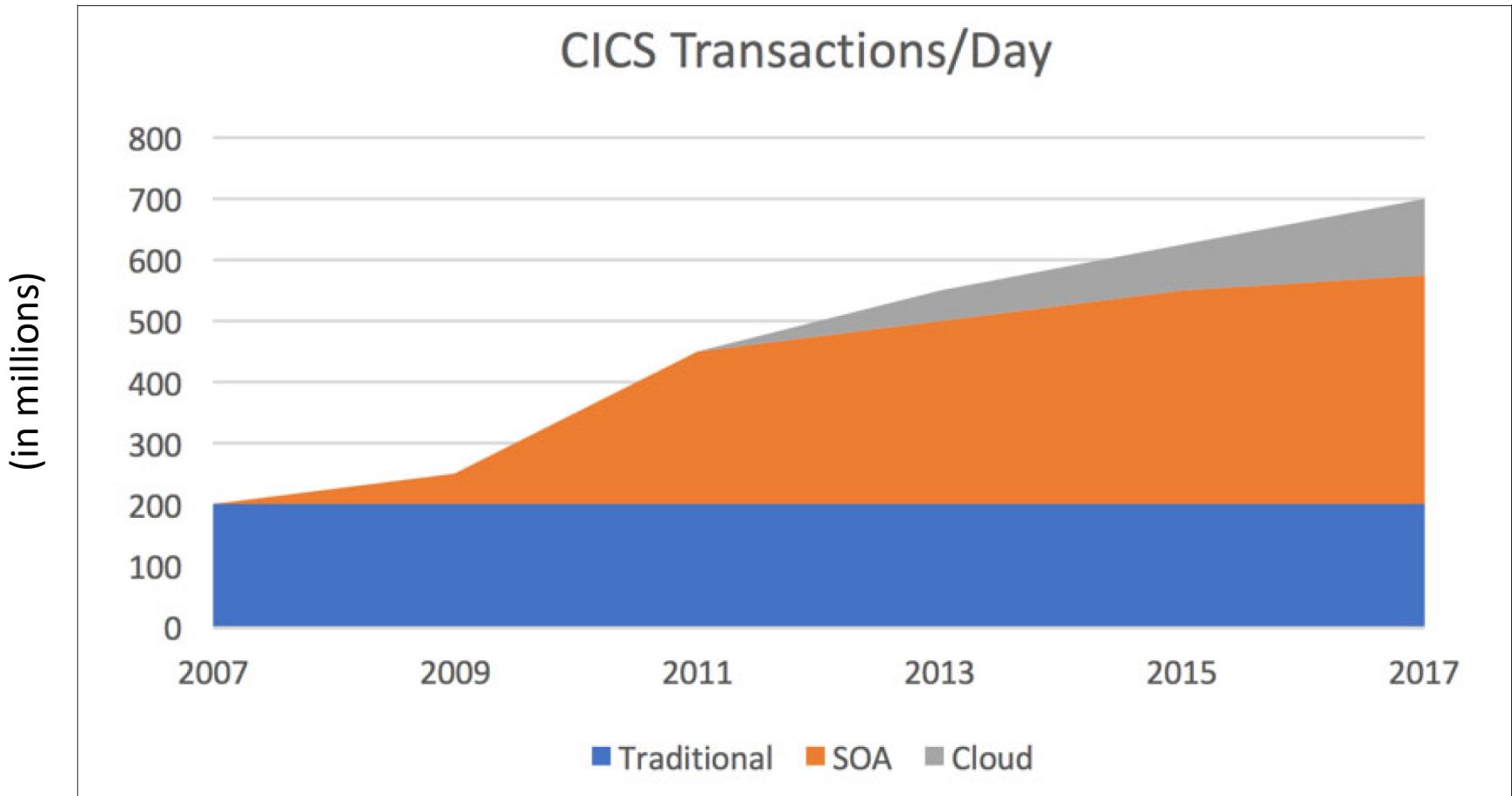
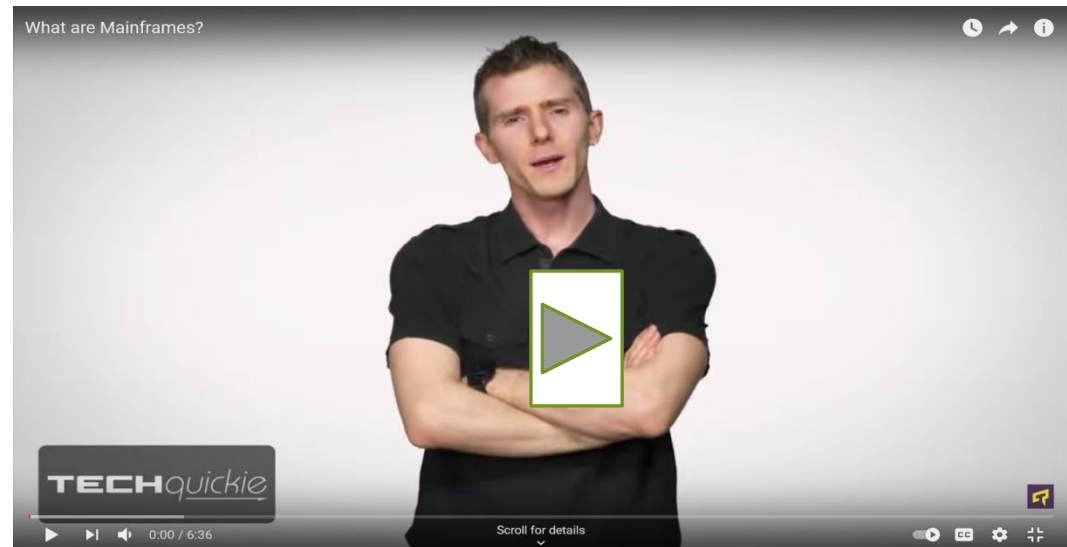


Figure 1-1 Walmart CICS transaction per day growth

CICS: Customer Information Control Systems

What is a mainframe?



<https://www.ibm.com/it-infrastructure/z/education/what-is-a-mainframe>



Links to Additional Video Resources

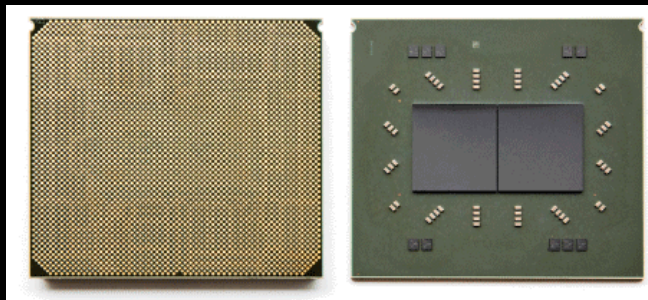
- [I Tried to Break a Million Dollar Computer](#)
- [What makes Millennials love the mainframe? Advice from Next-gen Devs](#)
- [Young 20-year old on why he bought a mainframe](#)
- [Assembling the IBM Z mainframe in 120 seconds](#)





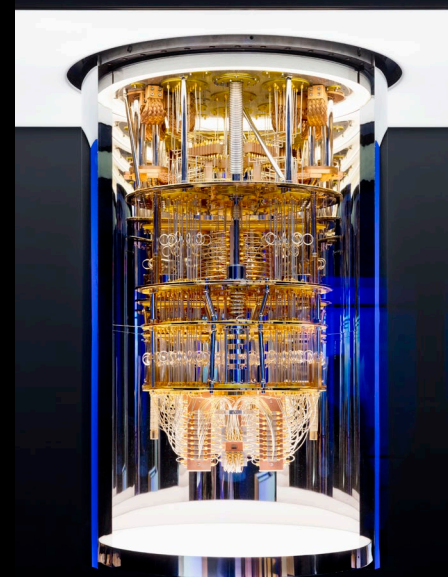
The Future of AI and Cybersecurity is Here

AI in Real Time



Brand new double chip Telum Processor allows for on chip AI acceleration

Future Proof Encryption



Quantum Cryptography pre-empts cybersecurity challenges created by quantum computing

Demand for IBM Z and Skills

60%

Mainframe
Technology
Specialists
over the age
of 50

71%

IT Leaders
say their
mainframe
team is
understaffed

93%

Say it's
moderately
or extremely
challenging
to find
mainframe
skills

67%

Executives
recognize the
mainframe's
ability to grow
and attract
new workloads

91%

Expanding
their
mainframe
footprints as a
moderate or
critical priority



Consider This!

Without a mainframe...

- Your airplane might not land safely (air traffic control)
- Your ATM would not give you \$\$ (banks all over the world)
- You could not buy something online (transaction processing)
- Trains could not run everywhere (virtual Linux servers)
- Hospitals could not access patient records (Patient Management)
- Your FedEx /UPS package would not ship? (shipping and tracking of shipments)
- The internet would not work

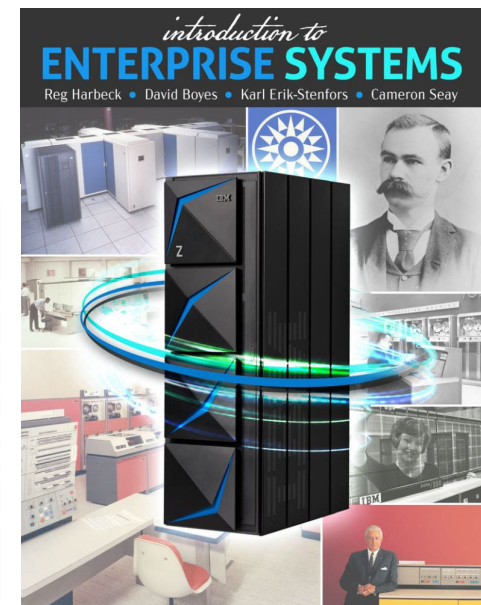
IT = Information Technology

- IT is everywhere in our lives!
- IT depends on Enterprise Systems.
- Mainframes do extreme computing.

How can you prepare?

Study

- Computer Science
- Information Technology
- Computer Information Systems
- Management Information Systems
- Business Information Systems
- Financial Computing
- Enterprise Computing



A New Learning Experience

Upskill, reskill and new skill

IBM Z Xplore is a year-round interactive learning platform available for any learner to get hands-on experience across a variety of technologies, to develop valuable skills, and to earn industry recognized badges – with no prior knowledge required!

You will find:

- Hands-on challenges
- Digital badging
- Direct access to IBM Z environments
- Progressive learning paths
- User community discussion boards

Fundamentals + Concepts:

Fundamentals: Learn about data sets and how to use VS Code. Introduction to coding languages such as JCL, Python, USS, and REXX.

Concepts: Increased knowledge on security, uptime and enterprise scalability. Take a deeper look into enterprise systems and RACF.

Advanced: Further your hands-on learning around REXX, COBOL, Linux, SQL1, Partitioned Data Sets, and more.

Extended: Develop skills surrounding TSO/ISPF, Node.js, MQ, VM, Machine Learning, Ansible, and more.



Concepts Badge



All Star Badge



Advanced Badge



Register today: ibm.biz/ibmz-xplore

Earn Mainframe Open Digital Badges and become highly marketable!



IBM Z Xplore Learning System - No experience necessary. Earn badges upon successful completion of Part 2 and Part 3 of the learning system.



z/OS Mainframe Practitioner Certificate - Earn up to four badges when you complete three self-paced, hands-on, e-learning courses through Coursera.



Z Community - Join the community to access even more resources!

Up to 8 mainframe digital badges at no cost*

**Course access is free for 1 month*



No-charge access to select IBM technology in three categories

Cloud Access

Enhanced access to the IBM Cloud and select cloud based resources and applications, such as the Watson APIs and Analytics Engine

Software

Access to the same software used by our commercial customers leading to practical training for today's jobs

Courseware

Faculty access to enterprise quality courses for inclusion in part or whole into existing and new curriculum



Where can you get a job working with IBM Z Systems?

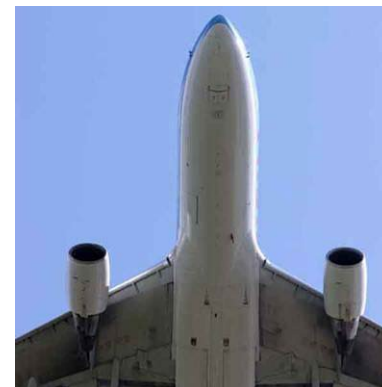
Government



Shipping



Airline



Auto insurance



Banking/finance

Students pursuing careers in technology are focused on five primary things in a potential career.

Enterprise Computing outperforms other IT roles

Base: US online adults, 18+; 414 IT professionals involved in software development, IT support, enterprise architecture, enterprise computing systems administration/development, data science, etc.
Source: A commissioned study conducted by Forrester Consulting on behalf of IBM, September 2019

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Good salary

● Enterprise computing role ● Other computing role

Trends show starting salaries in mainframe are **~\$8,000** more than in other mixed IT roles



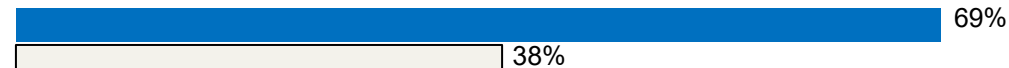
Good work-life balance

A good work-life balance (% rating 8, 9, or 10 out of 10)



Ability to make a social impact

Social impact, for example, the ability to contribute to open source, social, or community groups, with your technical skills



Working on something that aligns with primary interests in technology

Opportunity to work with leading-edgetech



Job security/role versatility

Nearly **90%** of professionals in enterprise computing careers agree the job market for their skill set is growing, and **75%** believe there is a shortage (i.e., high demand) for their skill.

Cobol Skills Are In Demand!

COBOL Remains in High Demand*

Industries that rely heavily on mainframes also depend on apps written in COBOL, the venerable mainframe programming language.

Yet the fact is that COBOL skills are still in demand. And precisely because younger COBOL programmers are in short supply, businesses that depend on COBOL are willing to pay top dollar for programmers who can provide COBOL expertise.

Article of Interest

COBOL Is Everywhere. Who Will Maintain It?

“220 billion lines of COBOL code in production today that handles \$3 trillion in commerce every single day”

Read more:

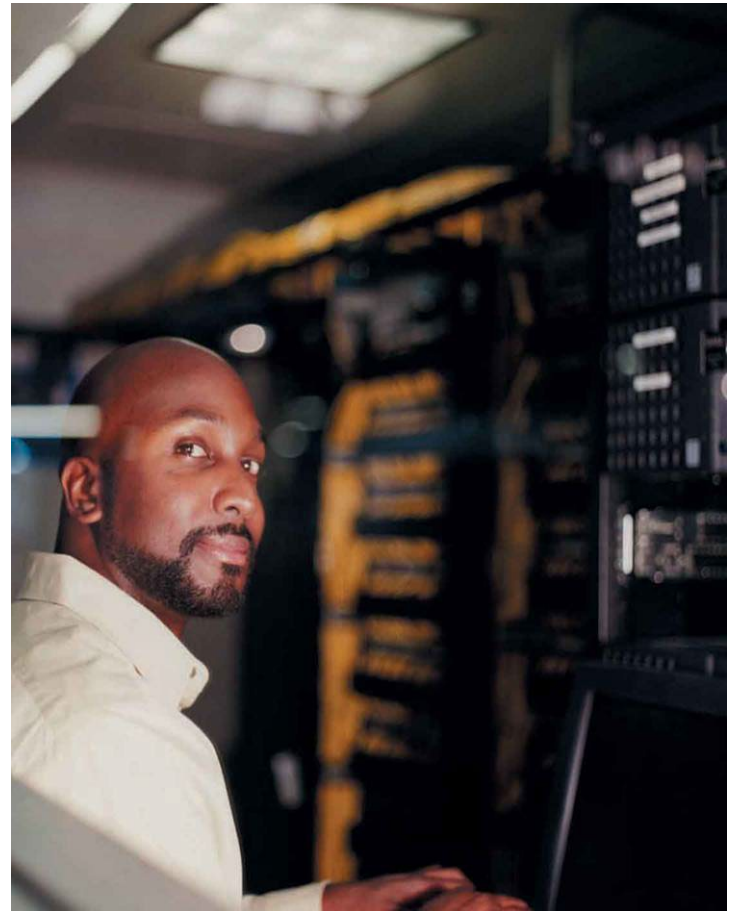
<https://thenewstack.io/cobol-everywhere-will-maintain/>

*Enterprise Systems Media, 5 Things Everyone Should Know About Mainframes, by [Christopher Tozzi](#) on January 2nd



Recommended skills

- A desire to learn
- Problem Solving
- Communication skills
- Teaming skills
- Attention to detail
- Computer programming
- Project management skills



Some Typical Mainframe Roles

Application Programmer
(Developer)

Operator

Performance and/or
Capacity Analyst

Security Administrator

System Administrators /
Programmers

Network Specialists

Database Administrators
(DBAs)

Production Control
Specialists

Career Areas

Following is a subset of career areas related to software development;

- OS System programmers
- Security
- Database Administration
- Networking
- System Architect
- Developer
- Function Test
- System Test
- Publication (user documentation)
- Support
- Project/Program/Offering Management
- Content Design
- More...

Looking for Mainframe Jobs? Check out these resources!

- Indeed
- Zip Recruiter
- Glass Door
- LinkedIn
- Launchcode.org



Additional References

Here are two articles I wrote in 2020 that describe what I have learned and some tips on approaching students.

[Bringing New Talent to the Mainframe Workforce](https://techchannel.com/Enterprise/01/2020/new-talent-mainframe)

<https://techchannel.com/Enterprise/01/2020/new-talent-mainframe>

[IBM and the Mainframe: The Invisible Brand!](https://mydigitalpublication.com/publication/?i=657478&p=16)

<https://mydigitalpublication.com/publication/?i=657478&p=16>



Thank
you!

For additional information
about the IBM z Systems
Academic Initiative,
E-mail the IBM z Systems
Academic Initiative team at:
zskills@us.ibm.com