What happens in one second?

- 1,200 Instagram Posts
- 10,000 Tweets
- 98,000 Videos
- 106,000 searches
- 1,157,407 IBM Z transactions
The backbone of the world’s leading businesses

- 7 out of the top 10 global retailers
- 45 out of the top 50 worldwide banks
- 4 out of 5 of the world’s largest airlines
- 8 out of 10 of the world’s largest insurers
What is a mainframe?

IT’s Best Kept Secret!
Public Network

Cloud Provider Network

Enterprise Network

APIs, Cloud and Enterprise Integration Services

Security
Enterprise Computing enables you to work in a wide variety of areas....

**Hybrid Cloud**
Public clouds like AWS, Azure and IBM Cloud partner perfectly with more secure private cloud options like IBM Z.

**Artificial Intelligence**
AI spending to jump to $154B in 2023

**Analytics**
Insurers are expected to spend approximately $8.3B, or 8% of their overall spending, with big data and analytics vendors in 2019, growing to $11.5B in 2022.

**Internet of Things**
The global insurance industry is spent $27.5B on IoT in 2022, growing to $168B in 2028.
Growing IBM Z & LinuxONE Open-Source Software Ecosystem

Linux Distributions & Virtualization
- Red Hat
- Ubuntu
- SUSE
- KVM
- Fedora
- Alpine
- OpenSUSE
- SLES
- Docker
- LXD
- Kubernetes
- Minikube
- OpenShift

Cloud & Container Services
- Docker
- LXD
- Kubernetes
- Minikube
- OpenShift

Languages & Runtimes
- Python
- Java
- JavaScript
- Ruby
- Node
- Java
- Python
- Erlang
- Go

DevOps/Automation
- Chef
- Ansible
- Puppet
- SonarQube
- Jenkins
- Maven
- Gradle
- GitLab Runner

Big Data, Observability, Analytics
- Flink
- Apache Solr
- Apache Kafka
- Apache Spark
- Logstash
- Splunk
- Ignite
- Grafana
- Elasticsearch
- Apache Storm

Networking & Monitoring
- NGINX
- HAProxy
- Kata Containers
- Terraform
- Sysdig
- Marathon
- Knative
- Kong
- Apache Tomcat

Databases & Storage
- CouchDB
- MongoDB
- MariaDB
- Couchbase
- Redis
- MySQL
- PostgreSQL

Middleware & others
- Apache ActiveMQ
- RabbitMQ
- Apache Camel
- Apache Geode
- Apache Mule
- Apache FABRIC

More: hub.docker.com
www.ibm.com/community/z/open-source-software/
“IBM Europe is changing how European clients work by leading them on the journey to hybrid cloud and becoming a responsible, cognitive enterprise.”

Rashik Parmar
IBM Fellow & Vice President Technology
## Banking Examples
- Compliance Testing: account ID take over and identity theft
- Gaming the system – reward cards and account openings
- Interest rate forecasting
- Loan processing & approval

## Finance Examples
- Enable point-of-sale payment processing with fraud detection
- Financial crimes detection, anti-money laundering (AML)
- Wealth management with predictive models

## Trading Examples
- High frequency trading analytics
- Algorithmic trading
- Clearing & Settlements

## Insurance Examples
- Real-time fraud detection for claims and images
- Claims adjudication
- Pricing & actuarial analysis for better risk assessment

## Other Examples
- Supply Chain
- Payroll processing
- Manufacturing
- Scientific research
- Computer design
- Biosecurity
- Mining
- Healthcare

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AI is delivering value in every industry.
The first IBM mainframe for AI arrives

The next-generation IBM z16 comes with an IBM Telum processor for real-time AI insights.

IBM z16 tackles financial fraud and quantum hacks

New addition to z series mainframe family uses IBM Telum processor to accelerate AI for real-time credit card fraud detection.

IBM’s Upcoming Z Series Chip Gains On-Chip AI Acceleration and New Name: Telum

August 22, 2021 by Todd R. Weiss

In a major refresh of its Z Series chips, IBM is adding on-chip AI acceleration capabilities to allow enterprise customers to perform deep learning inferencing while transactions are taking place to capture business insights and fight fraud in real-time.

IBM is set to unveil the latest Z chip Aug. 23 (Monday) at the
Client Use Cases In Finance & Banking

**FRAUD DETECTION**

**Business Challenge**
A large US bank was unable to score all transactions in real-time with an off-platform scoring engine. Causing 80% of transactions to go unscored.

**Business Impact**
100% real-time scoring, saving > $20M in exposure risk per year.

**Capabilities Leveraged**
- IBM Deep Learning Compiler
- IBM ODM
- Watson Machine Learning for z/OS
- IBM Z Integrated Accelerator for AI
- IBM Telum™

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**CLEARING & SETTLEMENT**

**Business Challenge**
A card processor needed to determine which trades and/or transactions have a high-risk exposure before settlement.

**Business Impact**
Enhancement of rules-based approach with no impact to SLAs.

**Capabilities Leveraged**
- Python
- LightGBM
- TensorFlow
- z/OS
- zCX

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**LOAN APPROVAL**

**Business Challenge**
A large lender needed to speed up their consumer loan approval process, in order to maintain client satisfaction.

**Business Impact**
Reduction in latency of over 1000X, with corresponding decrease in lender risk and exposure.

**Capabilities Leveraged**
- Watson Machine Learning for z/OS
- IBM ODM
- IBM Deep Learning Compiler
- TensorFlow
- ONNX
- ENAS
- BL
- OP

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**CLAIMS FRAUD**

**Business Challenge**
A state government in the US realized that their process to determine fraudulent claims was manual & intensive and could not scale, taking up to 40 hours per case.

**Business Impact**
Now able to process claims and detect fraud in under 1 minute per case and allocate resources to higher value tasks.

**Capabilities Leveraged**
- Watson Machine Learning for z/OS
- IBM Cloud Pak for Data
- Red Hat
- SUSE
- Ubuntu
- IBM Z Integrated Accelerator for AI
- SIMD
- IBM Telum™
Client Use Cases In Other Industries

**MEDICAL IMAGES**

**Business Challenge**
A Health Insurer needs to analyze large volumes of medical records, including training computer vision models, while optimizing for energy efficiency

**Business Impact**
Replace x86 server environments with LinuxONE to reduce energy consumption by x%

**Capabilities Leveraged**
- IBM Deep Learning Compiler
- Integrated Accelerator for AI
- ONNX
- PyTorch

**GEOSPATIAL ANALYSIS & NLP**

**Business Challenge**
A European land registry needs to determine which buildings have been added to, modified, or demolished for land surveys and tax purposes. Also embedding NLP into chat services.

**Business Impact**
Deploy on IBM z16 to ensure security of data, and optimization of IT and operational costs

**Capabilities Leveraged**
- IBM HPVS
- Watson Federated Learning
- Data Privacy for Diagnostics

**FEDERATED LEARNING**

**Business Challenge**
Organized Retail Crime costs over $3.5B per year to US retailers, who lack the ability to fully model for the risk as they only have the data for their own business.

**Business Impact**
Federated learning enables sharing of models, without exposing sensitive data, to catch the bad actors

**Capabilities Leveraged**
- IBM Deep Learning Compiler
- IBM Cloud Pak for Data

**DATA REDACTION**

**Business Challenge**
Due to banking secrecy laws and slow post-processing performance, a European bank was unable to send diagnostic data to vendors to effectively maintain operational stability for their production environment.

**Business Impact**
Automatic redaction of PI & SPI, resulted in a 47x performance improvement in post-processing speeds

**Capabilities Leveraged**
- IBM Cloud Pak for Data
- Watson Machine Learning for z/OS
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

Source: BMC Mainframe Survey 2023, Forrester 2020 Mainframe Market Pulse Survey
Students pursuing careers in technology are focused on five primary things in a potential career.

Enterprise Computing outperforms other IT roles

- **Good salary**
  - 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)
    - Enterprise computing role: 70%
    - Other computing role: 57%

- **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
    - Enterprise computing role: 69%
    - Other computing role: 38%

- **Working on something that aligns with primary interests in technology**
  - Opportunity to work with leading-edge tech
    - Enterprise computing role: 70%
    - Other computing role: 57%

- **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.

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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A New Learning Experience

• The new learning platform is a year-round interactive learning platform available for anyone 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
    • Progressive learning paths
    • Direct access to IBM Z environments
    • User community and leaderboard
    • Digital badging

Fundamentals: Learn about data sets and how to use VS Code. Introduction to coding languages such as JCL, Python, and USS through hands-on challenges.

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, Db2, and more.

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

Register today: ibm.biz/ibmzxplore