Linux Foundation, Open Mainframe Project
Mainframe Open Education, MoE, proposed
    Deeper Dive into Job Roles & Responsibilities

Mainframe Community
Job Roles, Responsibilities, & Careers

What are the jobs?

Where are the jobs?

Explain job skill expectations
and sources of information

Objective

- A Deeper Dive into Mainframe Community Job Role(s)
  1) Job description & skills expectations
  2) Sources of information to learn about the needed job description skills
  3) Sources of information to advance job description skill level
     ** *Specific job roles are a matter of the employer's value in the community*

- Awareness of the broader community with specific job roles and responsibilities

- Awareness of the wide variety of job roles and responsibilities in the broader community

- Awareness of career paths and career journey options

General Areas of Mainframe Community Roles & Responsibilities

- Operation Support & Services

- Hardware Engineering, Support & Services

- Software Engineering, Support & Services

- Business Application Development, Support, & Services

- Architects (Solution, Technical, Systems, Enterprise)

- Data Science Support & Services

- Technical Writers, User Experience Designers

- Marketing, Sales, & Education

- Project Management, Scrum Masters, & Management

IBM Mainframe Evolution

Past
- Built from the ground up for demands of business 60 years ago
- Transformed business during the past 60 years

Present
- Relentless advancements to the original design criteria
- Resurgence of recognized value, sustainability, and economies of scale
- ***Manages high percentage of the worlds critical data and transactions***

Future
- Positioned to be the premier production environment for artificial intelligence
- "Holy Grail of Business" is deep analytic processing at time of transaction.

"As technology and data have become vital to business efficiency and growth, the role of IT has moved beyond operations and services into core business strategy."

Responsibilities of Broader Mainframe Community

- Critical to the second by second operation of the worlds economy

- IBM Z, a critical tool of business tool, target of relentless advancement

- Many job roles, responsibilities, and careers across **5 categories of employers**

**Specific job role descriptions are a matter of an employee's value to the community
5 Unique Categories of Employers with Mainframe Jobs and Responsibilities**

- Large Information Technology Organizations

- Medium & Small Information Technology Organizations

- Software & Hardware Technology Providers, Support, and Services

- Facility Service Providers

- Consulting & Integration Services and Support Providers

Large Information Technology Organizations

- Bank, Insurance, Finance, Manufacturing, Retail, Distribution, Hotel, Airline, Car Rental, Health Care, Government Services, etc

- Millions of customers, billions of dollars involving billions of transactions daily

- Services available 24 hours a day, 7 days a week, 364 days a year, SLA, High Availability

- Mandatory Reliability, Availability, Serviceability, Scalability, and Security

- Significant separation of job responsibilities as a result of audit, regulations, and risk mitigation

- Well defined job responsibilities with narrow technical scope of responsibility

- Operations can be the most insightful for a career – see everything and follow strict procedures

- Great place to start a career journey

Medium & Small Information Technology Organizations

- Fewer customers, daily transaction workload, etc.

- Frequently less technically complexity infrastructures

- Technicians handle multiple technical discipline responsibilities

- Responsibilities learning journey will be longer, more stress forcing skills growth

- Acquire many skills over time without rotating to different internal departments

- Great place to become far above average as a mainframe technician

Software & Hardware Technology Providers, Support, and Services

- Design, Plan, Build, Sell, Maintain and Support Software Products

- Design, Plan, Build, Sell, Maintain and Support Hardware Products

- Rellers and Business Partners Broker Deals Involving Used Market Hardware

- Frequently provide consulting services in addition to software or hardware products

Business Information Technology Organizations and Facility Service Providers purchase hardware and software from the above community of employers and depend upon the above community of employers for support, services, and technology advancements.

Facility Service Providers

- Some Large, Medium/Small organizations make a decision to contract out Data Center support and services, aka outsourcing, to Data Center Facility and Service Providers

- Job responsibilities are similar to working at Large, Medium/Small organizations with exception of exclusive focus on the technology, not the business

- Job responsibilities include support and services to many companies

- Facility Service Providers are not company names you would recognize because they are B2B, but you would recognize the company names receiving the services because they are B2C.

Consulting & Integration Services and Support Providers

- Technology job responsibilities applied to contractual agreements

- Typically working with Large Enterprises to augment technical staff and advice executives

- Frequently hire college graduates and train them to fulfill contractual agreements

- Combine business sense and business acumen with technology skills

- Audit organizations fall in this category without consulting services

- Professional training/education organizations fall into this category

Operation Staff Support & Services

- System Operator / Automation Specialist
- Production Control Analyst / Job Scheduler
- Change Control Specialist
- Help Desk
- Tape and Printer Operator

Employer Categories

- Large/Medium/Small IT Enterprises
    Business and Technical Focus
    No need for technical marketing and technical sales positions

- Facility Service Providers
    Technical Focus
    Technical marketing and technical sales positions

Hardware Engineering, Support & Services

- Deep engineering disciplines related to chip design, computer architecture, digital devices, power/cooling, cables, etc.

- Hardware maintenance

Includes technical marketing, sales, and services

Software Engineering, Support & Services
- System Programmer (Operating System Services and Support) *
- Systems Administrators (Sub-Component System Services and Support) *
- Software Product/Tools Support and Services *
- Product Software Engineer ** *Relevant trivia: Who is Margaret Hamilton*

Employer Categories
- * Business IT companies
- ** Software Technology Providers

Sub-Component System Services and Support
- Security Administrator (RACF, ACF2, Top Secret)
- Database Administrator (Db2, IMS, Oracle, etc.)
- Transaction Server Administrator (CICS)
- Messaging Queuing Administrator (MQSeries)
- Storage Administrator (DFSMS, DSS, HSM, CA1)
- Products/Tools Administration (too many to list)

Site Reliability Engineer adoption https://sre.google/sre-book/table-of-contents/

Business Application Development, Support, & Services

- Business applications are built, maintained, and advanced by either the production IT organization or software provider organizations
- Most production IT organizations have a combination of locally developed applications and 'off-the-shelf' applications from a variety of software providers
- When buying 'off-the-shelf' business applications, the production IT organization needs to assign development personal to interface with the software provider for continued support and services

Architects

- Solution Architect refers to the organization of software systems leveraged by a company

- Systems Architect is understood as the physical placement of all software components on hardware --- is not software design

- Technical Architect is a the build/implementation link between the strategic idea where enterprise and solution architects delegate specific tasks

- Enterprise Architect keeps track of the overall technological landscape in the world, current IT trends, and competitors' advances in the field in the best interest of company

    *Business Architecture **drives** Information Architecture **prescribes** Information Systems Architecture **identifies** Data Architecture **supported** **by** Delivery Systems Architecture Hardware, Software, Communications*

    Highly experienced Enterprise Architect is critical when outsourcing to a Facility Service Provider

    https://diceus.com/technical-architect-vs-solution-architect-vs-enterprise-architect/

Data Science Support & Services

- Data Analyst
- Data Engineers
- Database Administrator
- Machine Learning Engineer
- Data Scientist
- Data Architect
- Statistician
- Business Analyst
- Data and Analytics Manager

https://www.discoverdatascience.org/articles/data-science-focus-areas/

https://www.mygreatlearning.com/blog/different-data-science-jobs-roles-industry/

Technical Writers, User Experience Designers

- Software & hardware providers working with engineers, marketing, and sales
- Easy to use product design attributes
- Installation and user documentation

Marketing, Sales, & Education

- Each of the employer categories providing software, hardware, or services to production IT organizations need marketing and sales position accompanied by technical strengths
- Each of the employer categories providing software, hardware, or services frequently provide education to their customers

Project Management, Scrum Masters, & Management

- The project management methods and procedures evolved in last decade to address the need to keep up with and exploit the technology advancements
- All the job categories require project management methods and procedure
- Management can be entirely separate deep dive due to the diversity of paths to enter the management ranks and progress in the management ranks.