Minnesota Dual-Training Pipeline
Competency Model for Information Technology
Occupation: Cloud Architect

Employer-Specific Requirements

Occupation-Specific Competencies
- Cloud ecosystems
- Application programming interface development
- Application functionality innovation
- Cloud native application capabilities
- Security solutions
- Cloud training and guidance
- Cloud architecture
- Technical problem solving
- New Industry trends
- Programming languages

Industry-Sector Technical Competencies
- Cloud applications architecture
- Computer architecture and design
- Big data and cloud computing
- Applied machine learning
- Cloud implementation management
- Internet architecture
- Internet security
- Cloud computing migrations

Industry-Wide Technical Competencies
- Principles of information technology
- Databases and applications
- Networks and languages
- Software development and management
- User and customer support
- Compliance
- Risk management, security and information assurance

Workplace Competencies
- Business fundamentals
- Teamwork
- Innovative thinking
- Planning and organizing
- Problem solving and decision making
- Working with tools and technology

Academic Competencies
- Reading
- Writing
- Mathematics
- Science
- Communication
- Critical and analytic thinking
- Fundamental IT user skills

Personal Effectiveness Competencies
- Interpersonal skills and teamwork
- Integrity
- Professionalism
- Initiative
- Dependability and reliability
- Adaptability and flexibility
- Lifelong learning

Based on: Information Technology Competency Model Employment and Training Administration, United States Department of Labor, September 2012.

*Pipeline recommends the Industry-Sector Technical Competencies as formal training opportunities (provided through related instruction) and the Occupation-Specific Competencies as on-the-job training opportunities.
Competency Model for Cloud Architect

**Cloud Architect** – A professional who supervises a company’s cloud computing system. This person works on cloud application designs, cloud approval plans, and systems required to manage cloud storage. This position is often also known as a cloud developer or cloud systems administrator.

**Industry-Sector Technical Competencies**

- **Cloud applications architecture** – Understands infrastructure as a service (IaaS), platform as a service (PaaS), software as a service (SaaS).
- **Computer architecture and design** – Trained in software capabilities, databases, applications, and other components engineered for solving business problems by leveraging the power of cloud resources.
- **Big data and cloud computing** – Know how the Cloud opens data analytics of huge volumes of data that are static or streamed at high velocity and present an enormous variety of information.
- **Applied machine learning** – Understand the use of binary prediction, category prediction and value prediction. Machine learning is leveraged for specific types of applications to bring value to organizations.
- **Internet architecture** – Understand varying frameworks of an internet network.
- **Cloud implementation management** – Know how to configure features for elasticity, availability, and scalability using industry-standard techniques, best practices, and tools.
- **Internet security** – Understand a range of security tactics for protecting activities and transactions conducted online over the internet. These are meant to safeguard users from threats, and malicious software that can infect and damage systems.
- **Cloud computing migrations** – Ability to analyze current workloads, bring existing IT systems to the cloud, and configure new systems or services to enhance business operations.

**Occupation-Specific Competencies**

- **Cloud ecosystems** - Understand how to design, build, and advise clients on implementing cloud technology.
- **Application programming interface development** – Knowledge of a software intermediary that enables applications to exchange data and functionality easily and securely.
- **Application functionality innovation** – Be able to practice creativity and open team collaboration to meet customer needs.
- **Cloud native application capabilities** – Know the configuration of optimized landscape to manage legacy and modern deployments.
- **Security solutions** – Be able to develop for cloud and hybrid cloud security, risk management, and compliance functions.
- **Cloud training and guidance** – Know how to train and guide all individuals whose roles bring them into contact with the cloud structure.
- **Cloud architecture** – Understand how to build secure, highly scalable, and reliable cloud applications.
- **Technical problem solving** – Employ superior analytical skills to fix problems and expedite cloud-based solutions.
- **New industry trends** – Follow and stay up to date on the latest trends and technology in cloud computing possibilities.
- **Programming languages** – Understand programming languages including PowerShell and others.

## Cloud Architect Occupational Training Plan

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<th>List Course/Training Name and Title</th>
<th>Description of Courses and/or Training Program</th>
<th>List Responsible Provider: Company, College, Trainer, or other</th>
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### On-The-Job Training Competencies

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*Updated December 2021*