DEPARTMENT OF COMPUTER APPLICATIONS

COURSE

23CAE717
Cloud Computing

UNIT V

Security in the Cloud

TOPIC

Autonomic Computing

Semester

II Semester /
I MCA

Autonomic Computing

❑ New field of computing initiated by IBM

❑ A self-managing **computing** model as like human body's **autonomic** nervous system

❑ System is self-healing, self-configured, self-protected and self-managed

❑ Control the functioning of computer applications and systems without input from the user

Autonomic Computing -Framework

❑ The framework is composed of autonomic components interacting with each other

❑ AC can be modeled in terms of two main control loops (local and global) with
- sensors (for self-monitoring)
- effectors (for self-adjustment)
- knowledge and planner/adapter for exploiting policies based on self- and environment awareness.

❑ Every autonomic system should be able to exhibit a minimum set of properties
  - Automatic
  - Adaptive
  - Aware

Autonomic Computing - Characteristics

Defines

❑ to know resources it has , its capabilities and limitations

❑ able to automatically configure and reconfigure itself

❑ be able to optimize its performance

❑ be able to work around encountered problems by either repairing itself / routing functions away from the trouble.

❑ detect, identify and protect itself against various types of attacks to maintain overall system security and integrity
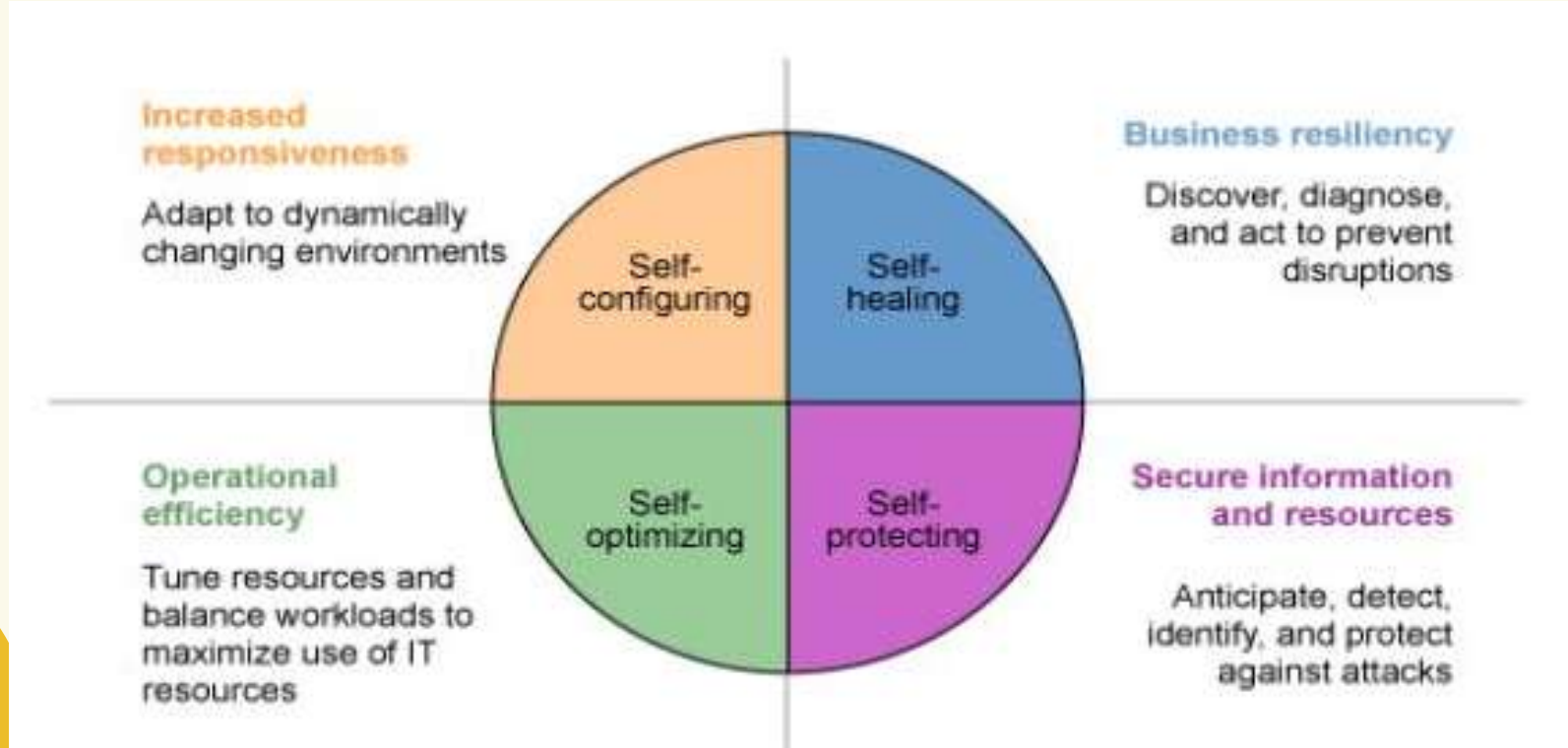
Autonomic Computing - Characteristics

Defines

❑ able to adapt to its environment as it changes, interacting with neighboring systems and establishing communication protocols.

❑ rely on open standards and cannot exist in a proprietary environment.

❑ anticipate the demand on its resources while keeping transparent to users

Autonomic Computing - Characteristics

Increased responsiveness

Adapt to dynamically changing environments

Operational efficiency

Tune resources and balance workloads to maximize use of IT resources

Self-configuring

Self-healing

Self-optimizing

Self-protecting

Business resiliency

Discover, diagnose, and act to prevent disruptions

Secure information and resources

Anticipate, detect, identify, and protect against attacks

Autonomic Computing

❑ It incorporates about its security vulnerabilities

❑ Use database programming, software, hardware

❑ Immutable Service Containers – Project of sun solaris

❑ Architectural deployment pattern used to describe a foundation for highly secure service delivery

❑ Container into which a service or set of services is configured and deployed

❑ One service per one container

Autonomic Computing

❑   Identity and Access Management

❑   Intrusion detection and prevention
      mechanism

❑   Event recovery

❑   Scalable cyber security

❑   privacy

References

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