Cloud Computing Concepts

CS 3132

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Comparative Overview: Web 1.0, Web 2.0, Web 3.0, Semantic Web, and Cloud Computing

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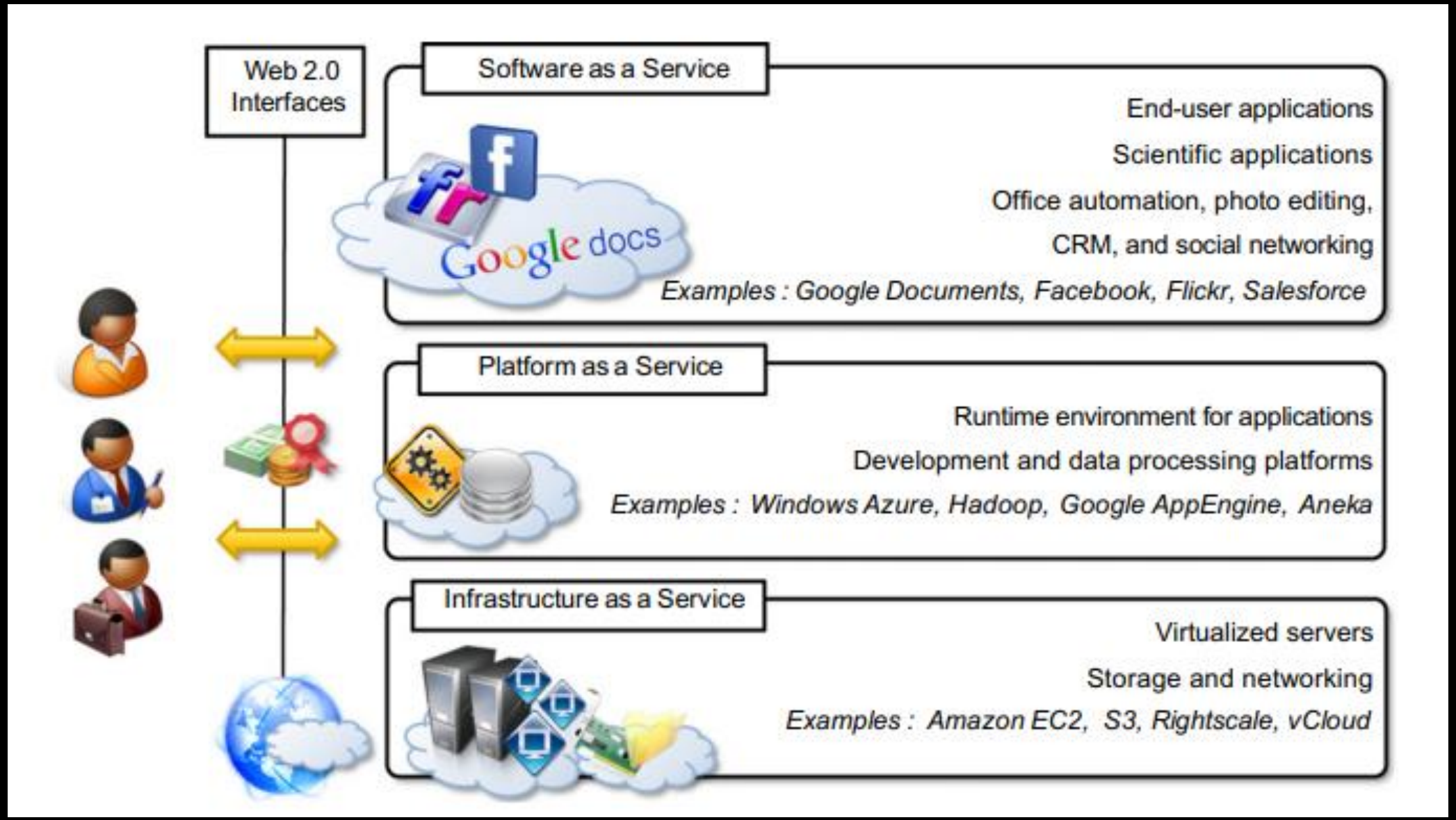
- Web 1.0:
  - known as the "static web" or "read-only web," refers to the early days of the internet when websites primarily provided static content
  - During this phase, websites were mainly informational and lacked user interaction
  - The focus was on delivering information to users, and there was limited collaboration or user-generated content
- Web 2.0:
  - the "social web" or "read-write web," marked a significant shift in the internet landscape
  - It introduced interactive and dynamic features that allowed users to contribute, share, and collaborate
    - Examples include social media platforms, blogs, wikis, and online communities. Web 2.0 emphasized user-generated content, social networking, and collective intelligence.



Book : Mastering Cloud Computing

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- Web 3.0:
  - represents the next phase of internet evolution
  - It aims to create a more intelligent and interconnected web by enhancing data sharing and understanding among machines
  - **Web 3.0 utilizes technologies like artificial intelligence, natural language processing, and linked data to enable machines to understand context and meaning**
  - This allows for more advanced and personalized user experiences

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- Semantic Web:
  - Semantic web is closely related to Web 3.0
  - It's a concept that involves structuring data on the internet in a way that allows machines to understand the relationships between various pieces of information
  - It aims to make the web more meaningful and intelligent by enabling computers to process and interpret data like humans do
  - Linked data, ontologies, and RDF (Resource Description Framework) are key components of the semantic web

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- Cloud computing
  - Cloud computing refers to the delivery of computing services (such as storage, processing power, and software) over the internet
  - It enables users to access and use resources without the need for owning physical hardware or infrastructure
  - Cloud computing offers scalability, flexibility, and cost-efficiency
  - It is categorized into three main service models:
    - Infrastructure as a Service (IaaS),
    - Platform as a Service (PaaS), and
    - Software as a Service (SaaS).

Parameter	Web 1.0	Web 2.0	Web 3.0	Semantic Web	Cloud Computing
Definition	Static, read-only content	Interactive, user-generated content	Intelligent, interconnected web	Structured, meaningful web	Internet-based computing services
User Interaction	Limited or none	Extensive, user-generated content sharing and collaboration	Enhanced personalization, intelligent interactions	Contextual understanding	Remote access to resources
Key Features	Information delivery	Social media, blogs, wikis, online communities	AI, natural language processing, linked data	Data structuring, ontologies, RDF	Scalability, flexibility
Focus	Information dissemination	User-generated content, social networking	Enhanced machine understanding, context awareness	Meaningful data relationships	Resource delivery over the internet
AI Integration	Limited	Basic	Advanced AI technologies	AI for data interpretation	AI-powered services
Data Interpretation	Minimal	Limited AI-based suggestions	Advanced AI-driven context understanding	Enhanced semantic interpretation	AI-driven analysis and insights

Parameter	Web 1.0	Web 2.0	Web 3.0	Semantic Web	Cloud Computing
Main Advantage	Information sharing	Collaborative content creation, networking	Intelligent data understanding, personalized experiences	Structured data, meaningful relationships	Resource scalability, cost-efficiency
Main Technologies	HTML, static websites	Social media platforms, blogs, wikis	AI, NLP, linked data, ontologies	RDF, OWL, SPARQL	Virtualization, distributed computing
User Experience	Limited interaction	Interactive, social networking	Advanced, personalized experiences	Semantic understanding	Remote resource access, availability
Examples	Early websites	Facebook, Wikipedia	Contextual AI assistants, smart searches	Linked data repositories	Amazon Web Services, Google Cloud