Ethics in Cloud Computing

ETHICS IN CLOUD COMPUTING

Cloud computing raises ethical concerns in data handling, security, and sustainability. Key principles: Privacy, Transparency, Fairness, Sustainability

DATA PRIVACY & CONFIDENTIALITY

Protect user data, comply with regulations (e.g. GDR)

CASE STUDY: Google's Project Nightingale – Collected patient data without proper consent

CASE STUDY: Vendor Lock-in with AWS/Azure

SECURITY & TRUST

Prevent breaches, handle vulnerabilities responsibly

CASE STUDY: Vendor Lock-in with AWS/Azure – Proprietary services impede migration

FAIR ACCESS

Promote affordable cloud services for all users

CASE STUDY: Digital Divide in Cloud Adoption – Proprietary services impede migration

ENVIRONMENTAL IMPACT

Reduce carbon fooprint of data centers

CASE STUDY: AWS Outage Communication

VENDOR ETHICS

Apple's Privacy Commitment

Minimal data collection, on-device processing

Data Privacy & Confidentiality

- ▶ Issue
  - ▶ Protecting sensitive data stored in cloud environments.
- ▶ Example:
  - ▶ Google's Project Nightingale – Collected patient health data without proper consent.
- ▶ Key Risks:
  - ▶ Unauthorized access, unclear consent, compliance failures.
- ▶ Learn More:
  - ▶ Ethics in the Cloud – Data Sovereignty & Privacy [numberanalytics.com]
- ▶ Best Practices:
  - ▶ Encryption, strict access control, GDPR/HIPAA compliance.

Security & Trust

- Issue
  - Preventing breaches and handling vulnerabilities responsibly.

- Example:
  - Facebook – Cambridge Analytica Scandal – Misuse of personal data for political profiling and targeted ads
  - Springer – Ethics and Cloud Computing

- Best Practices:
  - Regular audits, multi-factor authentication, transparent incident reporting.

Ownership & Control

- Issue
    - Who owns the data? Vendor Lock-in
- Example:
    - *AWS/Azure Lock-In* – Proprietary services impede migration.
    - Ethical Cloud – Engineering Concerns
- Best Practices:
    - Use Open Standards, negotiate portability clauses in contracts

Fair Access

- Issue
  - Bridging the digital divide and ensuring affordability
- Example:
  - *Rural communitiies lack affordable cloud access.*
- Best Practices:
  - Tiered pricing, community cloud initiatives.

Transparency & Accountability

- Issue
  - Clear SLAs and disclosure of outages
- Example:
  - *AWS Outage communication issues – delayed disclosure impacted businesses .*
- Best Practices:
  - Publish compliance reports, .

Vendor Ethics

- Issue
  - Fair Labour practices and ethical sourcing
- Example:
  - *Apple's Privacy Commitment* – On-device processing as an ethical benchmark.
- Best Practices:
  - Supplier audits, fair trade certifications..

Environmental Impact

- Issue
  - High energy consumption of data centers
- Example:
  - *Google Cloud's Renewable Energy Initiative* – Investing in green data centers.
- Best Practices:
  - Carbon-neutral hosting, energy-efficient hardware.