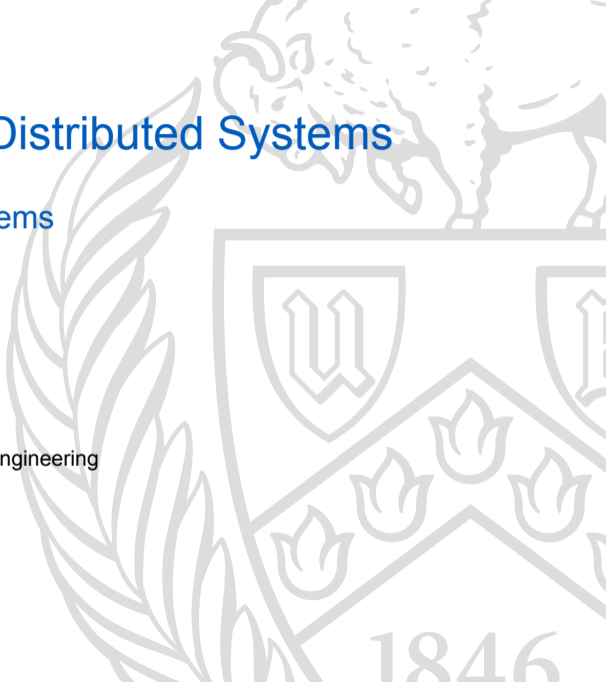


# An Exploration of Distributed Systems

CSE 486: Distributed Systems

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# Introduction

This is an exploration of distributed systems.

It is not exhaustive, or even **particularly broad**.

All of these systems are real, and **source available**.

Have a look!

# Tahoe-LAFS

Tahoe-LAFS is a distributed storage layer.

- Capability-based
- Fault-tolerant
- Resilient to compromised servers
- Uses sophisticated cryptographic techniques

# IPFS

IPFS is a distributed peer-to-peer network.

- Many protocols!
- Uses content addressing
- Blob storage and filesystem overlays
- Name services
- Uses Kademlia!

# etcd

etcd is a distributed key-value store.

- Guarantees consistency
- Provides pub-sub-like semantics
- Consensus using Raft!

# CockroachDB

CockroachDB provides distributed SQL transactions.

- Failure-tolerant via replication and quorum
- Provides serializable distributed transactions
- Uses gossip and Raft!

# Syncthing

Syncthing provides distributed replication of files.

- Allows concurrent access
- Survives disconnected operation and failures
- Has conflict resolution for concurrent writes

# Plan 9

Plan 9 from Bell Labs is an operating system.

- Designed for distributed operation
- Separates computation and storage
- Implements filesystem access via message passing
- Provides many services as files
- Maintained as [9front](#)



# Additional Topics

- Careers
- What we didn't talk about
- ???

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