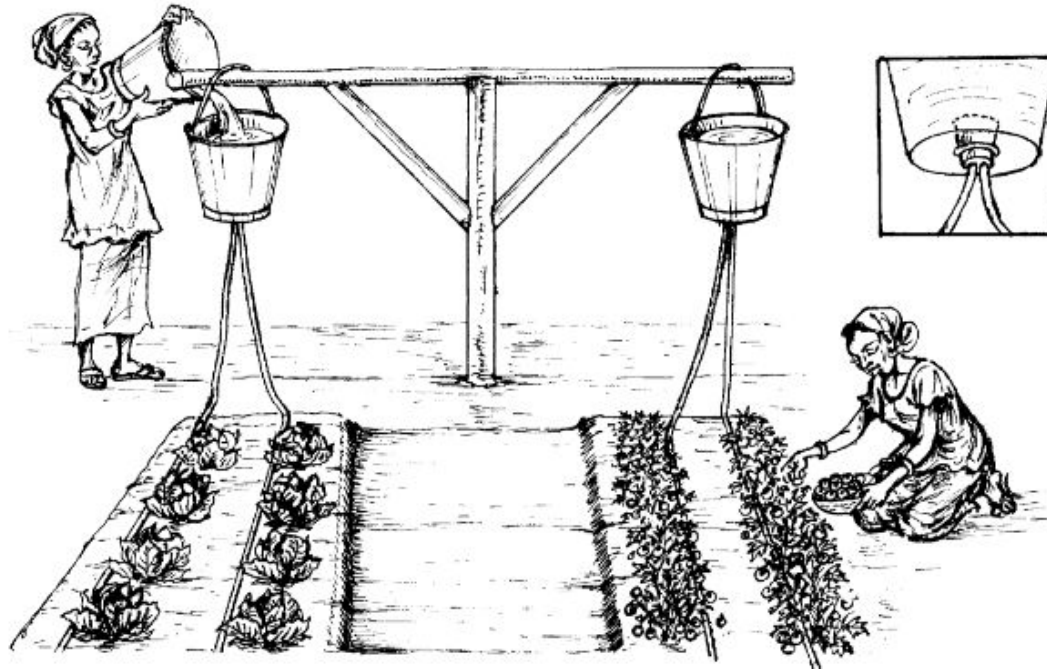# SOA
Service-Oriented Architecture

Strategic Goals of SOA

- ❏ Intrinsic Interoperability
- ❏ Federation
- ❏ Vendor Diversification
- ❏ Business Alignment
- ❏ Return of Invesment
- ❏ Reduced IT Burden
- ❏ Organizational Agility

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Intrinsic Interoperability

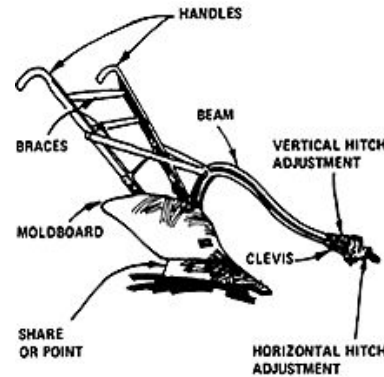**Interoperability**: Ability of software to interact and exchange data.

Integration: Effort required to achieve interoperability.

Services are designed to be compatible and interoperable, regardless of when and by whom they are delivered.

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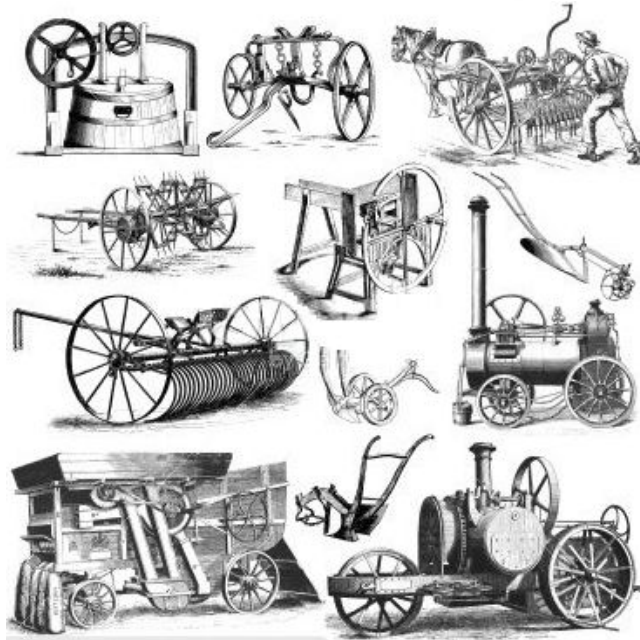
Federation

Technical interface

Endpoint

Unification of business segment allowing **independent government**. Standardized services.
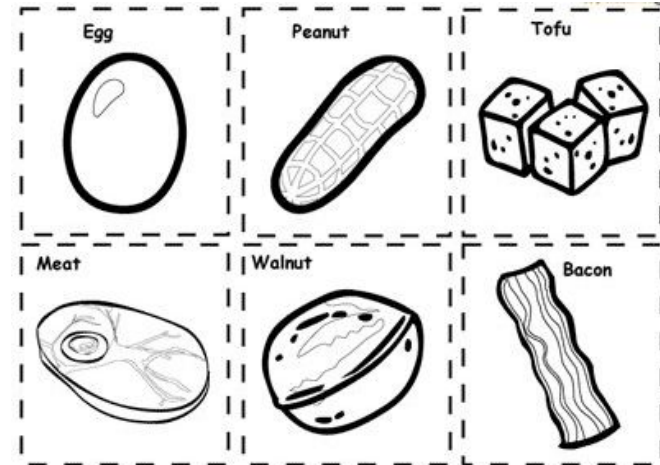
Vendor Diversification

The ability an organization has to pick and **choose best-of-breed** vendor products and technology innovations and use them together within one enterprise.

➜ Development Language

➜ Database Manager

➜ Application Server

➜ Security Platform

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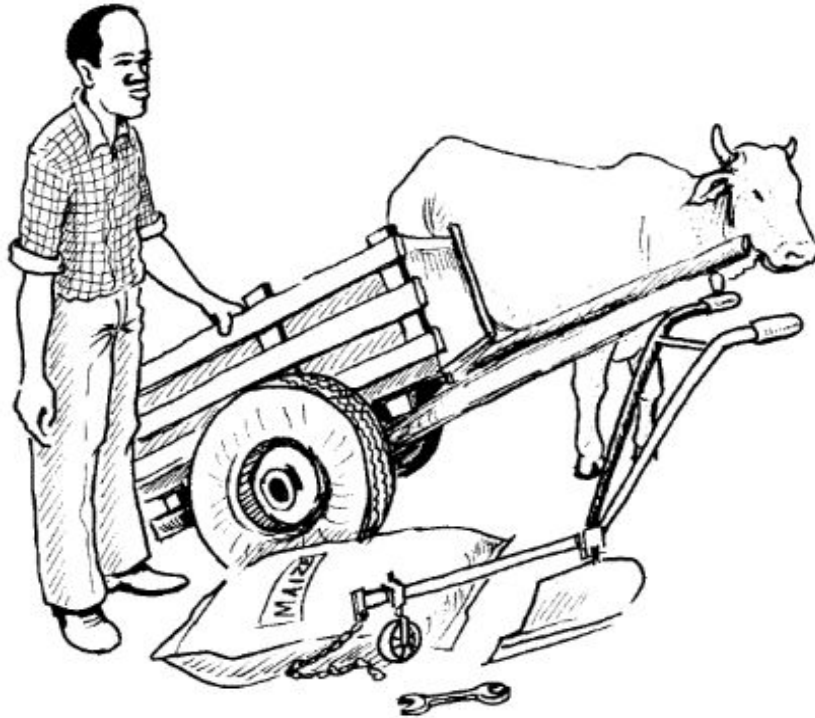L&L

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Business Alignment

Abstraction and accurate encapsulation.

Business logic can be partitioned into **flexible services** that continually respond to change.

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Reduced IT Burden

- ❏ Reduce waste and redundancy
- ❏ Reduce size and operational cost
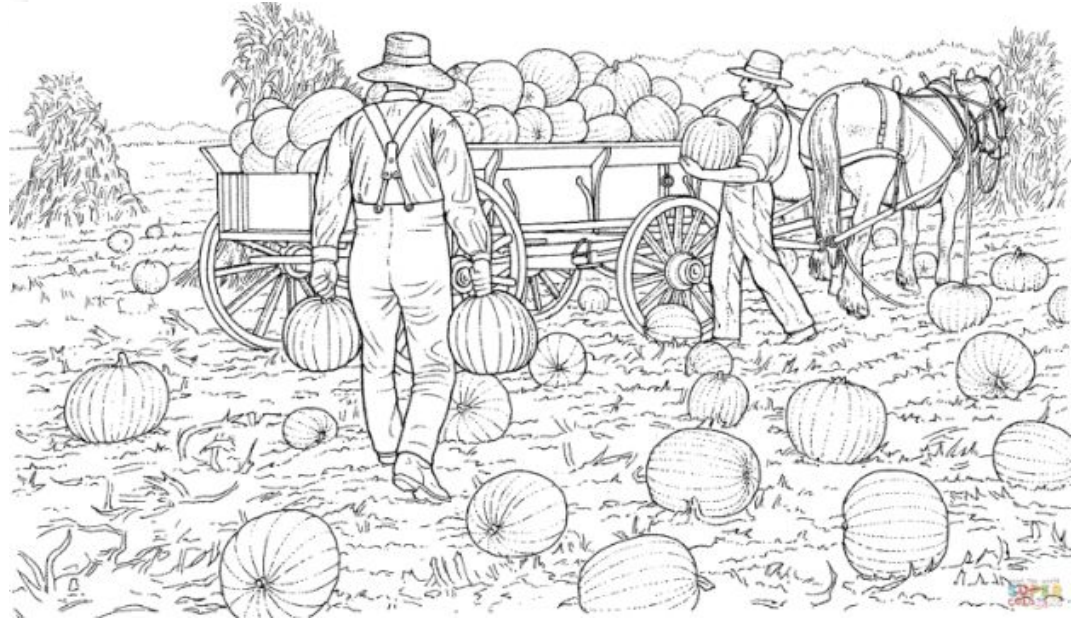- ❏ Reduce overhead governance
- ❏ More agile IT department

Organizational Agility

Time and effort required to **fulfill new or changed business requirements** is dramatically reduced.

Services: Basic building blocks

➜ Granularity

➜ Contract design

➜ Agnostic vs no-agnostic

➜ Legacy encapsulation
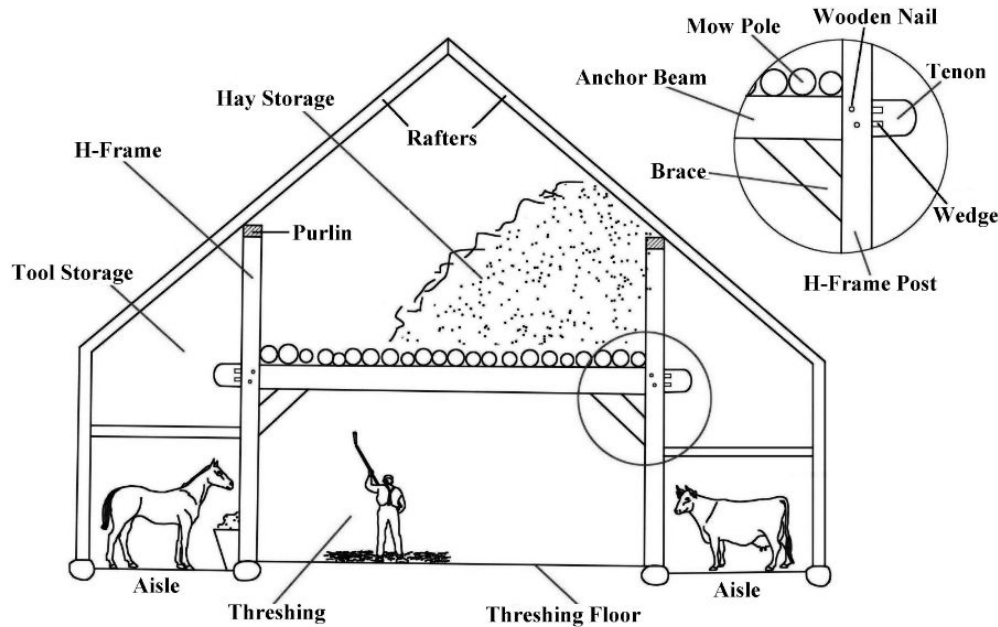
➜ Security

➜ Governance

Primary goal is produce services with **functional agonistic** context.

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Service Compositions

Is an **aggregate of services** collectively composed to automate a particular task or business process.

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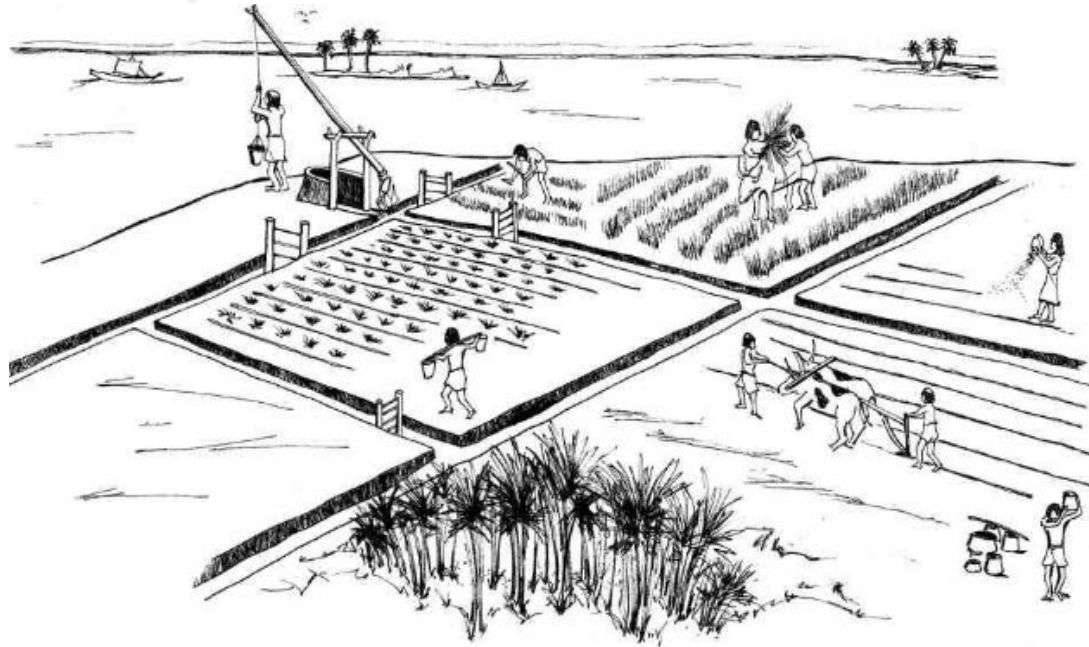
Service Inventory

Layers: Task, Entity and Utility.

- Scope and boundary

- Scalability

- Standardization

- Runtime platforms

- Infrastructure

- Governance

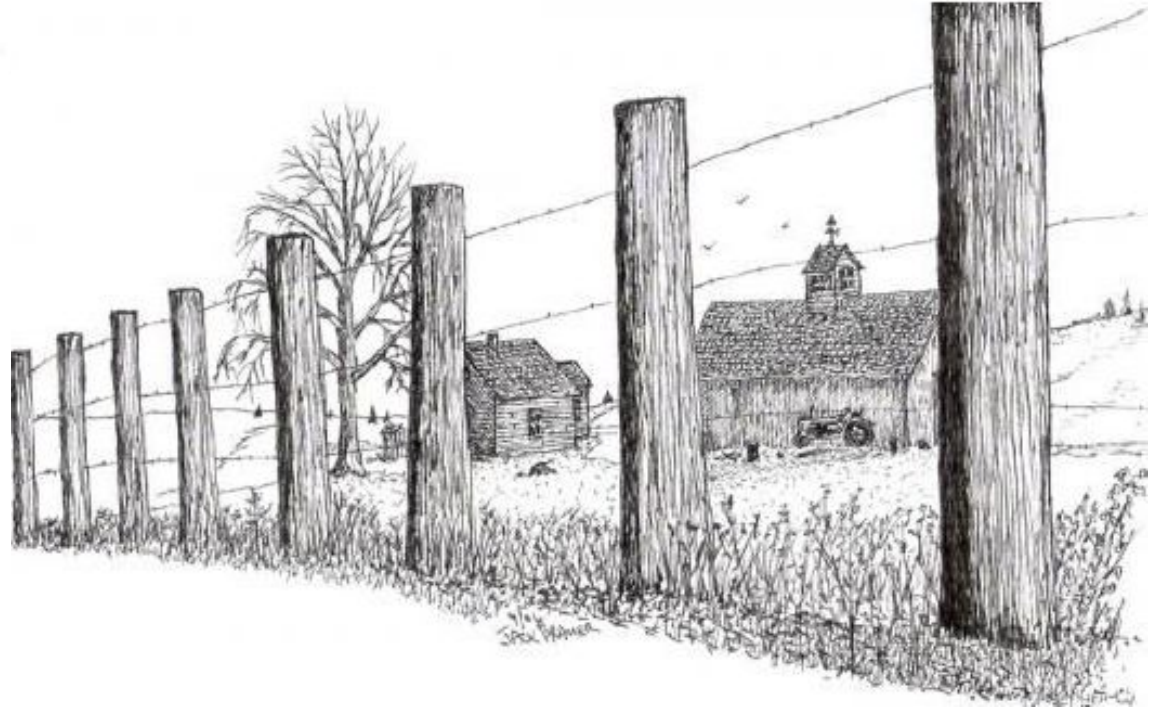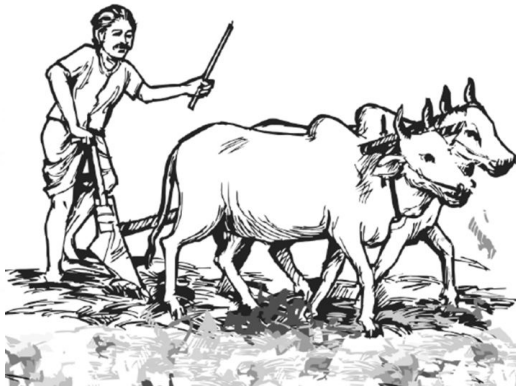Depending on size may be needed Domain service inventory.

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Delivery Lifecycle

➔ Analysis ➔ Modeling ➔ Design ➔ Development ➔ Implementation
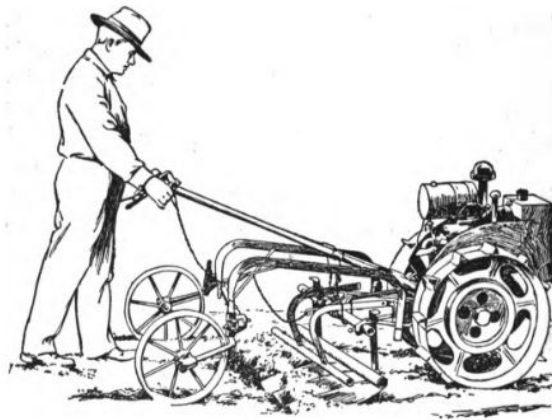
Roles, Security and Policies

❖ **Roles**
Consumer
Intermediary
Provider

❖ **Service Contracts**
Concrete description
Performing operations

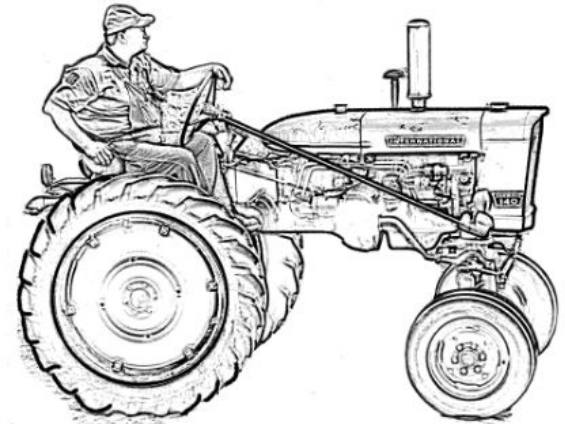❖ **Policies and regulations**
Patterns
Assertions
Transactions control

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Web-based Service Technology

Hard Coded   REST   Cloud

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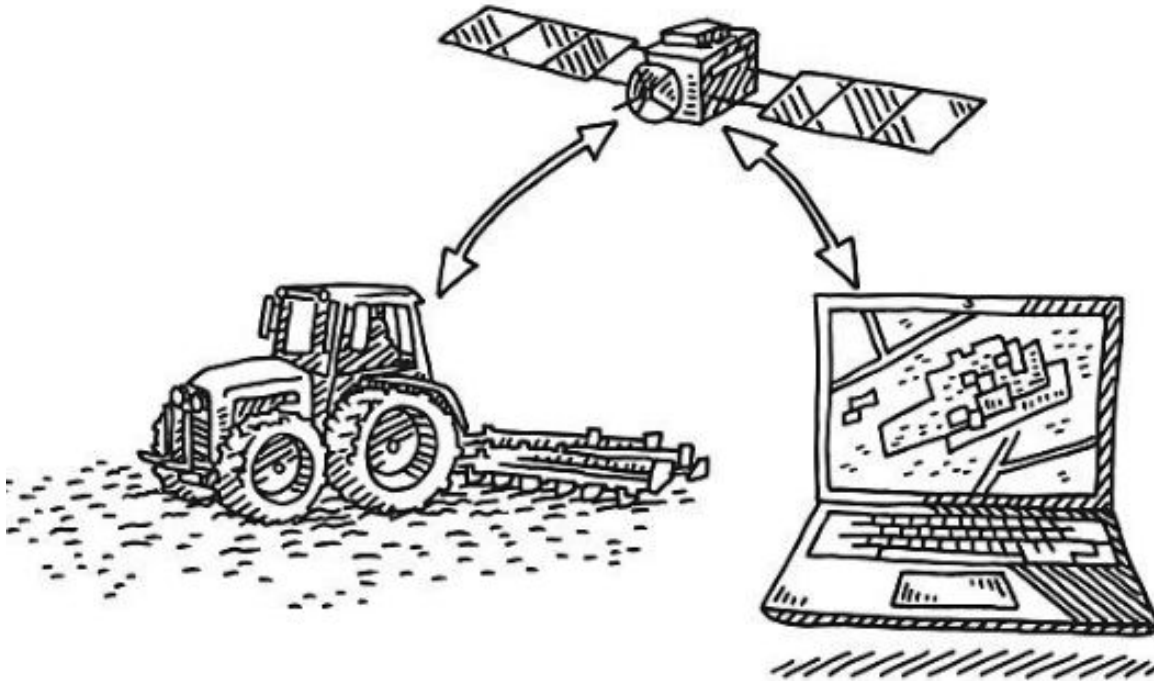Velocity Partners

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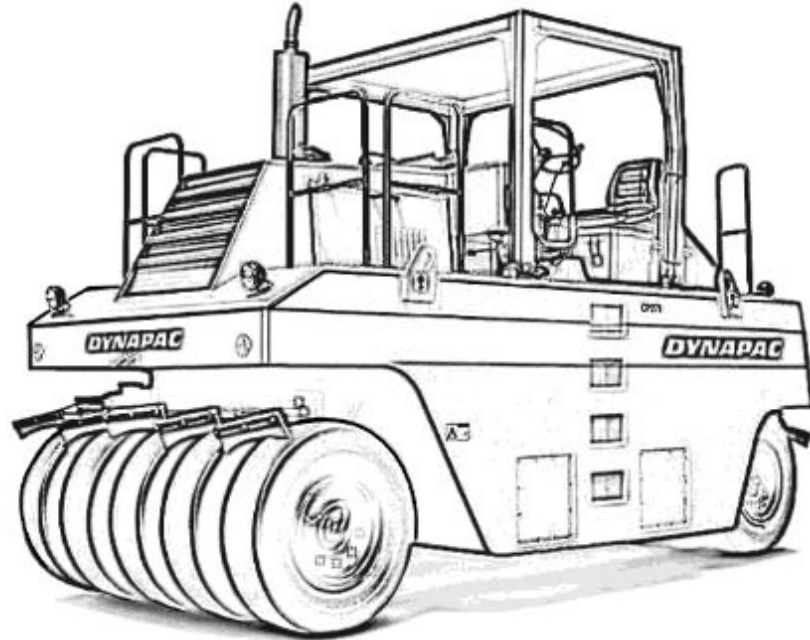L&L

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Cloud Computing

Cloud Deployment Models

❖ Public Cloud
   Owned by a third-party cloud provider.

❖ Community Cloud
   Access limited to a specific community.

❖ Private Cloud
   Owned by a single organization, centralizing access to IT resources.

❖ Hybrid Cloud
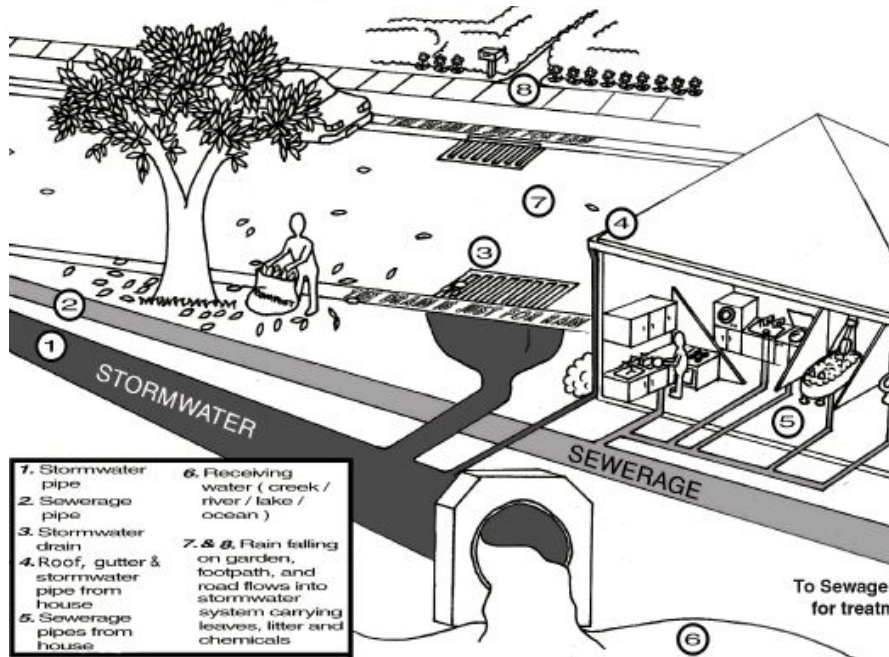   Two or more cloud deployment models

Infrastructure as a Service (IaaS)

★ Amazon AWS

★ Google Cloud

★ Microsoft Azure

★ IBM Bluemix

★ Digital Ocean

★ Oracle Cloud

★ Alibaba Cloud

★ Fujitsu

★ Tencent Cloud

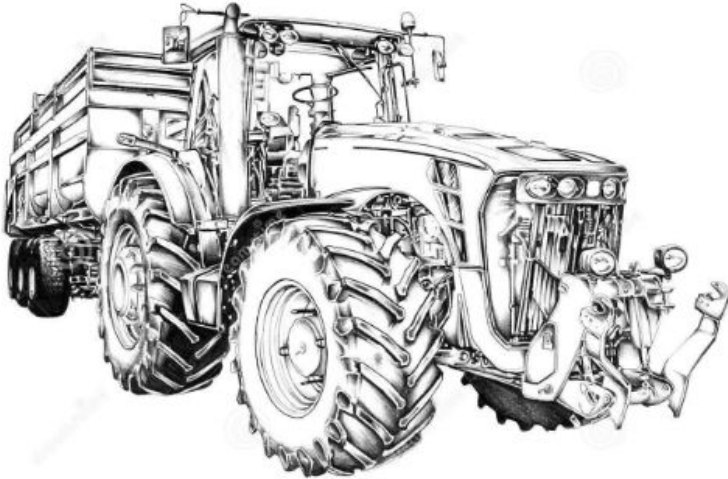IT resources are generally raw and not preconfigured.

Platform as a Service (PaaS)

1. Stormwater pipe
2. Sewerage pipe
3. Stormwater drain
4. Roof, gutter & stormwater pipe from house
5. Sewerage pipes from house
6. Receiving water (creek / river / lake / ocean)
7. & 8. Rain falling on garden, footpath, and road flows into stormwater system carrying leaves, litter and chemicals

STORMWATER

SEWERAGE

To Sewage for treatm

- ❏ Docker
- ❏ Heroku
- ❏ Rancher
- ❏ Ubuntu
- ❏ Cloud66
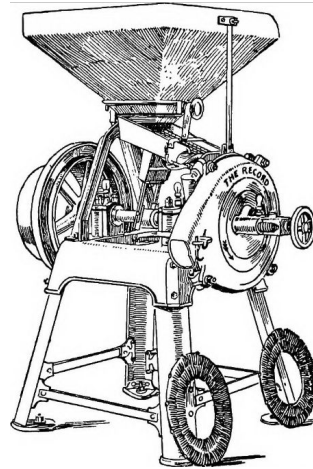- ❏ Lightbend
- ❏ Openshift
- ❏ PaaSTA
- ❏ Apcera

Pre-defined cloud environment. Supports entire delivery lifecycle.

Software as a Service (SaaS)
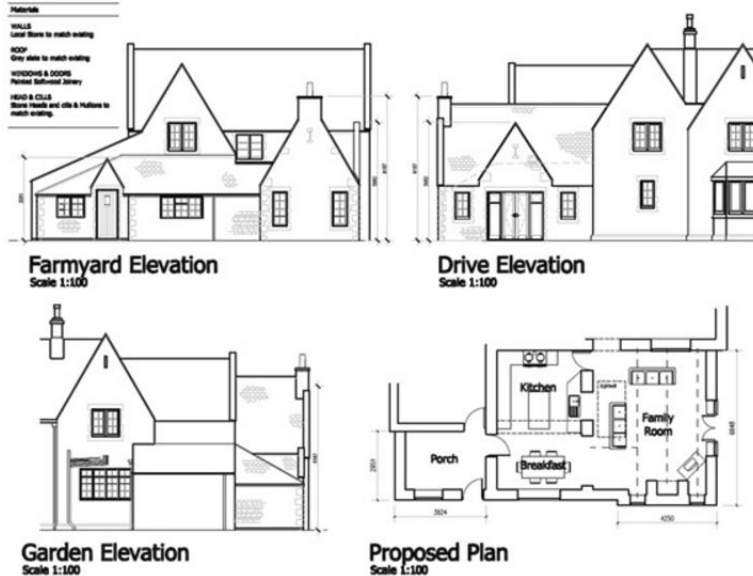
Shared cloud service offered by a cloud provider

Limited usage control

Cloud provider retains administrative control

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References & Links

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Scale 1:100

Drive Elevation
Scale 1:100

Garden Elevation
Scale 1:100

Proposed Plan
Scale 1:100

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