The Zorilla Peer-to-Peer Middleware system

Niels Drost

niels@cs.vu.nl

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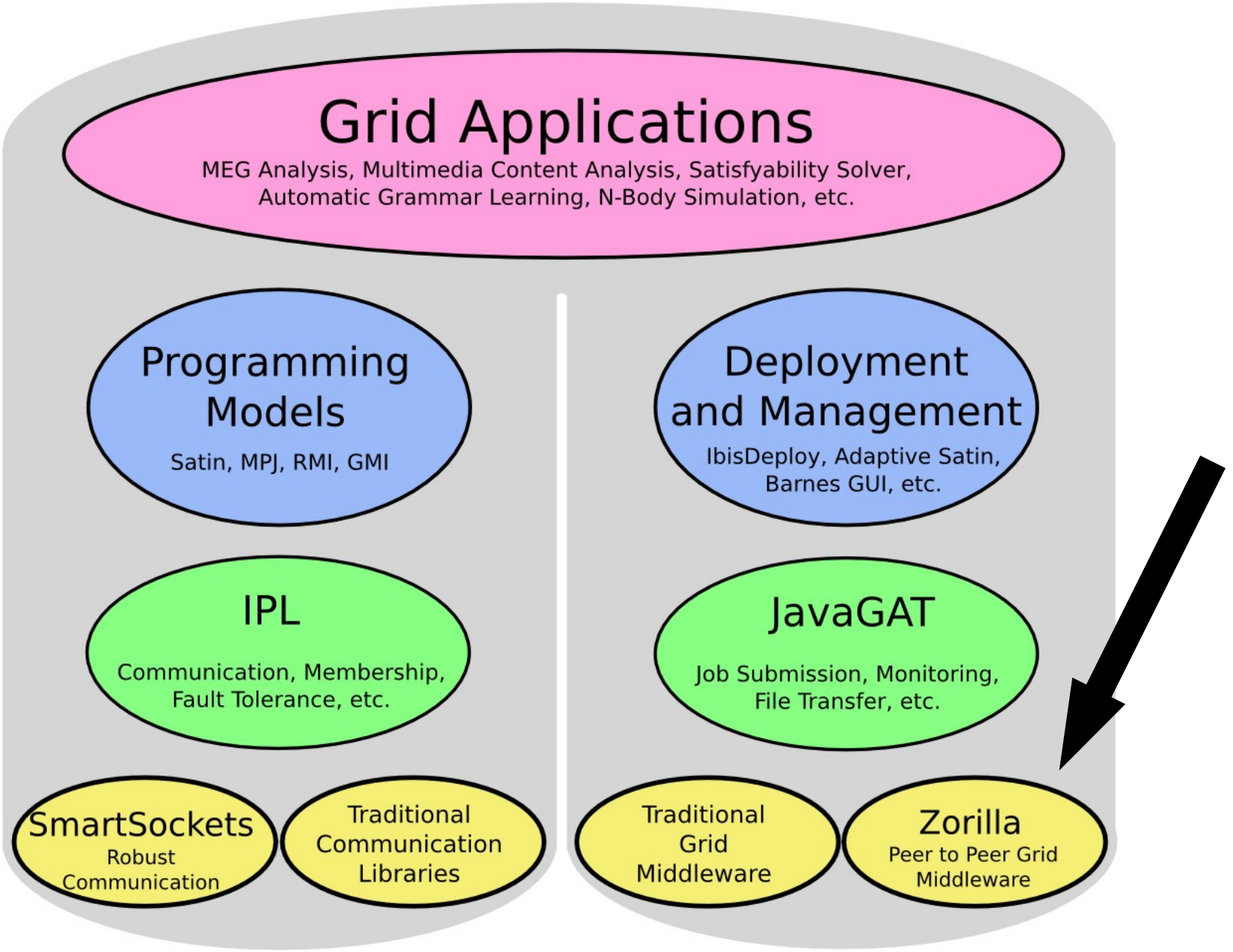
Current Middleware

- Hard to install
- Hard to maintain
- Centralized (not very fault tolerant)
- Usually no Co-Allocation

Alternative: Zorilla

- Prototype Java Peer-to-Peer middleware
- Fully distributed
- Easy to setup (just add Java)
- Fault tolerant (no single point of failure)
- P2P: Limited trust/security
- Interface: JavaGAT

Zorilla in the Ibis project



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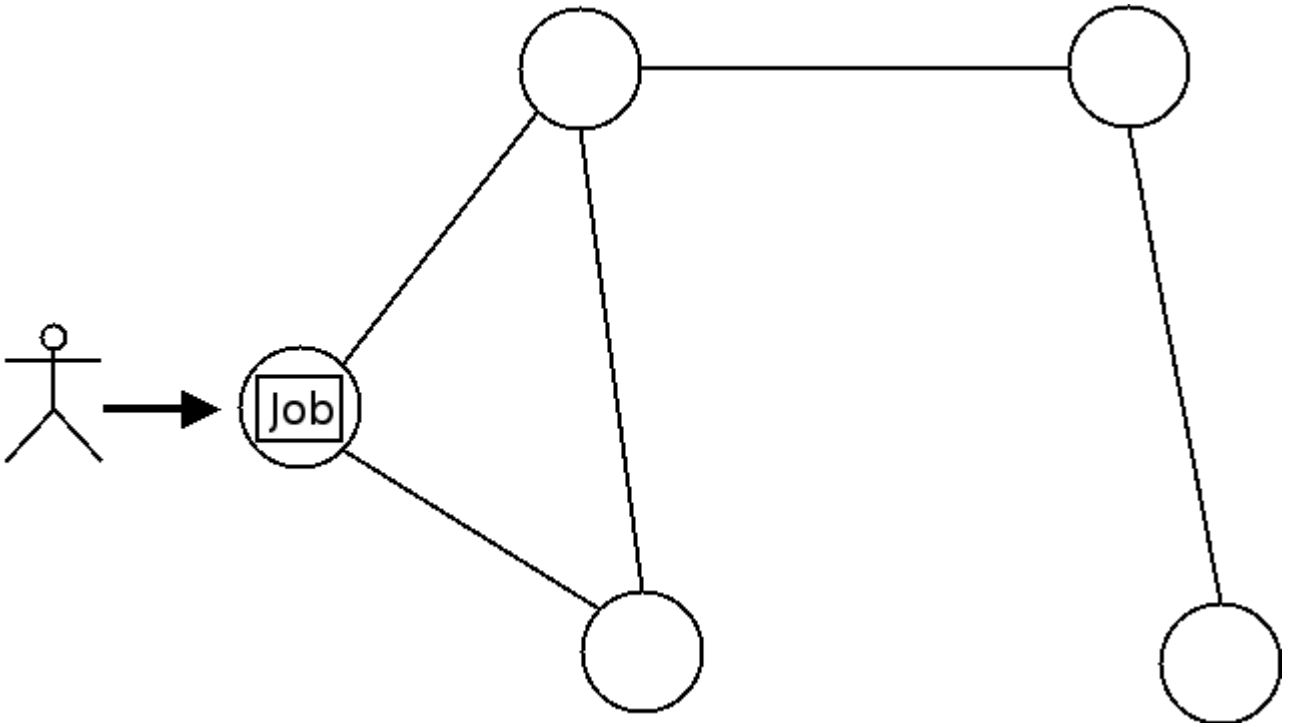
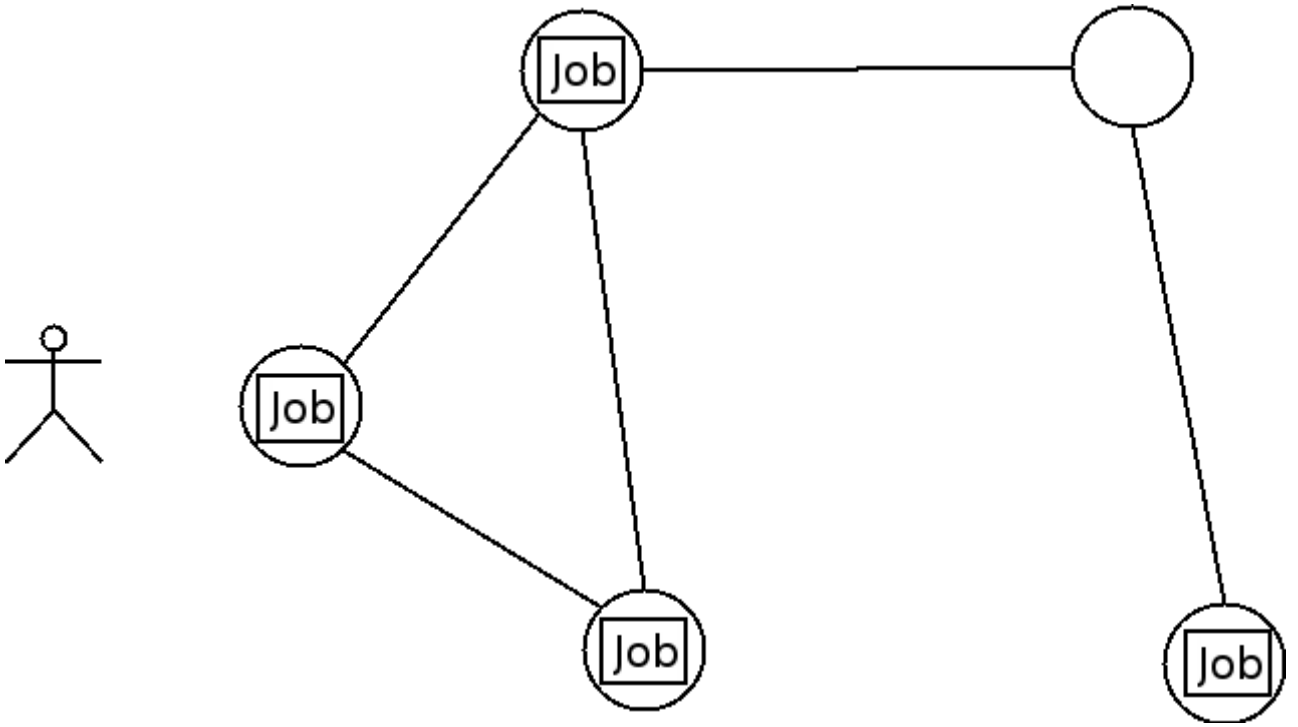
Life of a job (1/4)



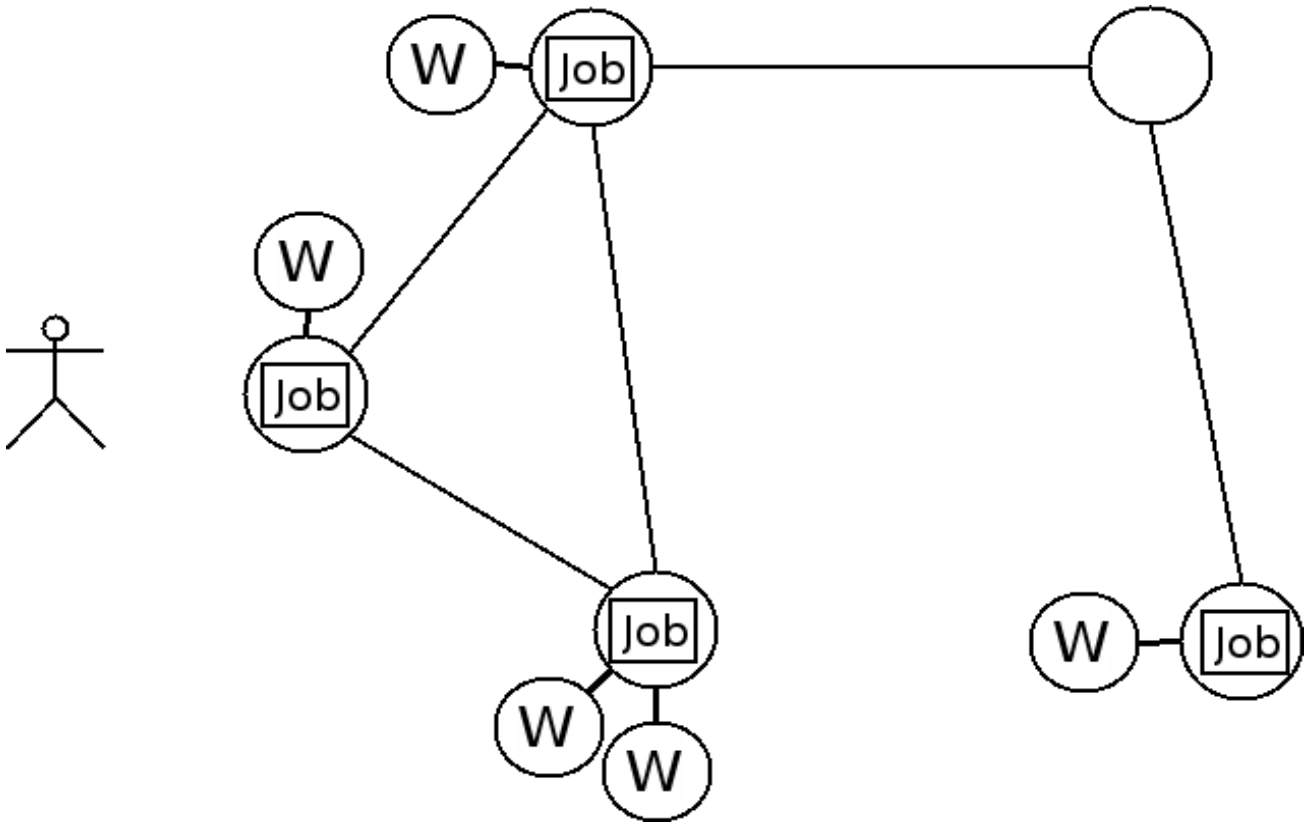
- Submit

Life of a job (2/4)



- Resource Location

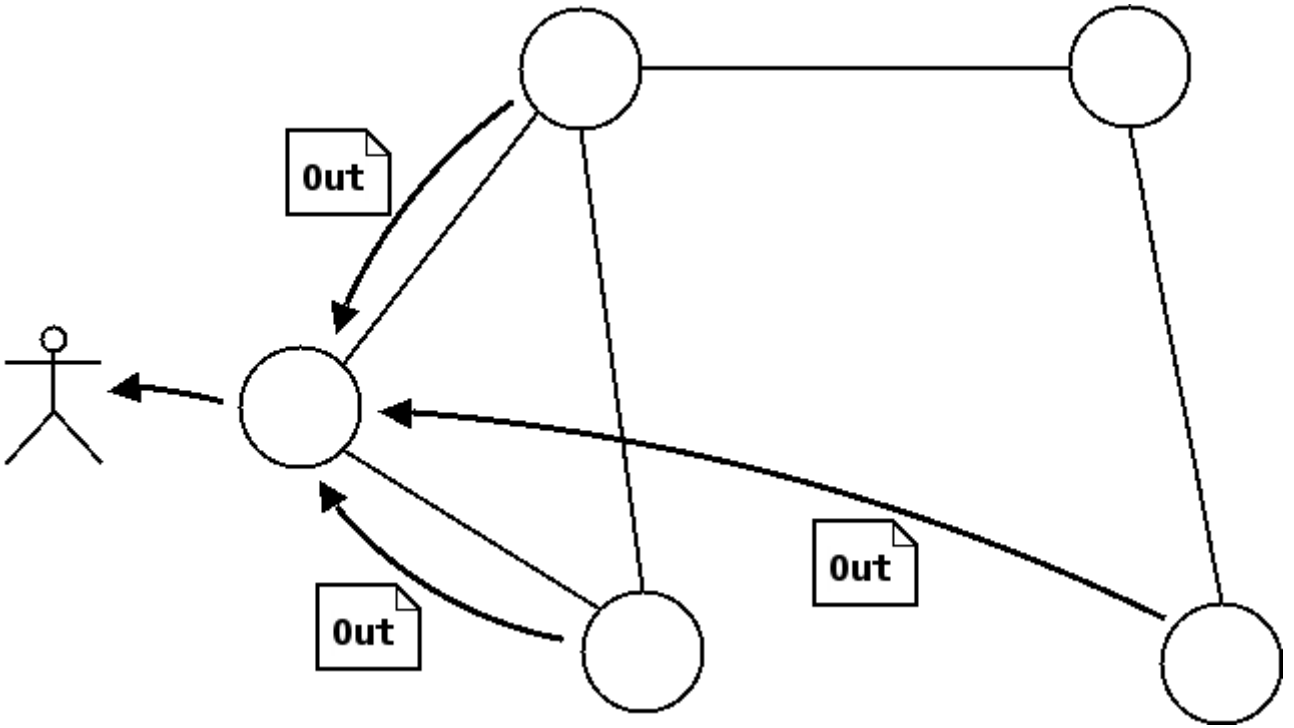
Life of a job (3/4)



- Workers Started

W = Worker running Application

Life of a job (4/4)



- Results returned to user

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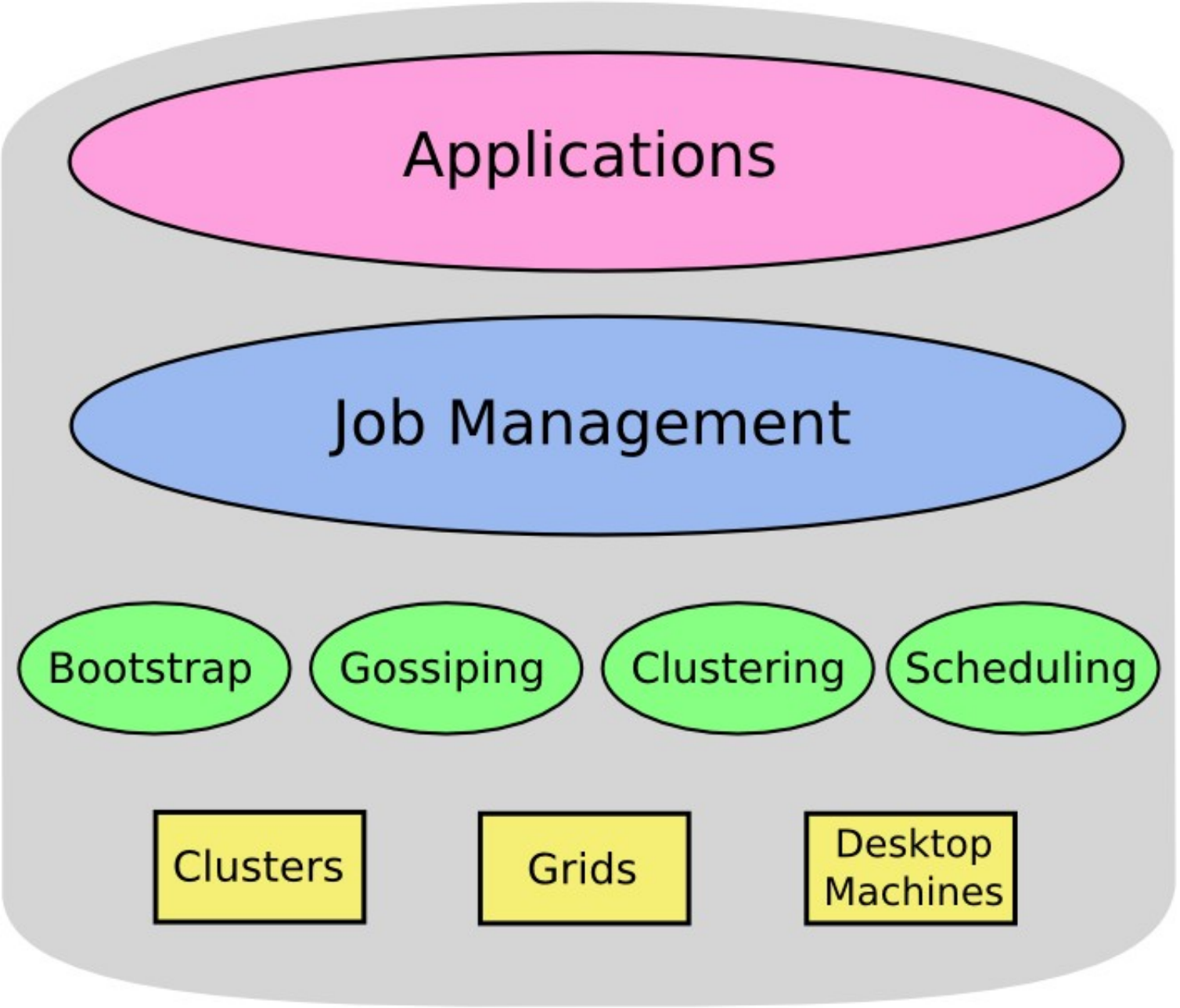
Zorilla Overview



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Zorilla Components

- Bootstrap
  - Initial set of contact points
  - UDP broadcast or provided by user
- Gossip overlay network
  - Actualized Robust Random Gossip (ARRG)
  - Withstands Firewalls et al.
- Clustering
  - Nearest neighbor list

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Zorilla Components (2)

- Flood scheduling
  - Incrementally search for resources at more and more distant nodes
- Job Management
  - Status (scheduling, running, done, etc)
  - File transfers
  - Malleability / crashes

Zorilla Usage

1) Install recent JVM

2) Download Zorilla at
   http://www.cs.vu.nl/ibis

3) Run “zorilla”
   (see --help for options)

4) Repeat 1-3 for all machines

5a) Start application using JavaGAT

5b) Start application using “zubmit”

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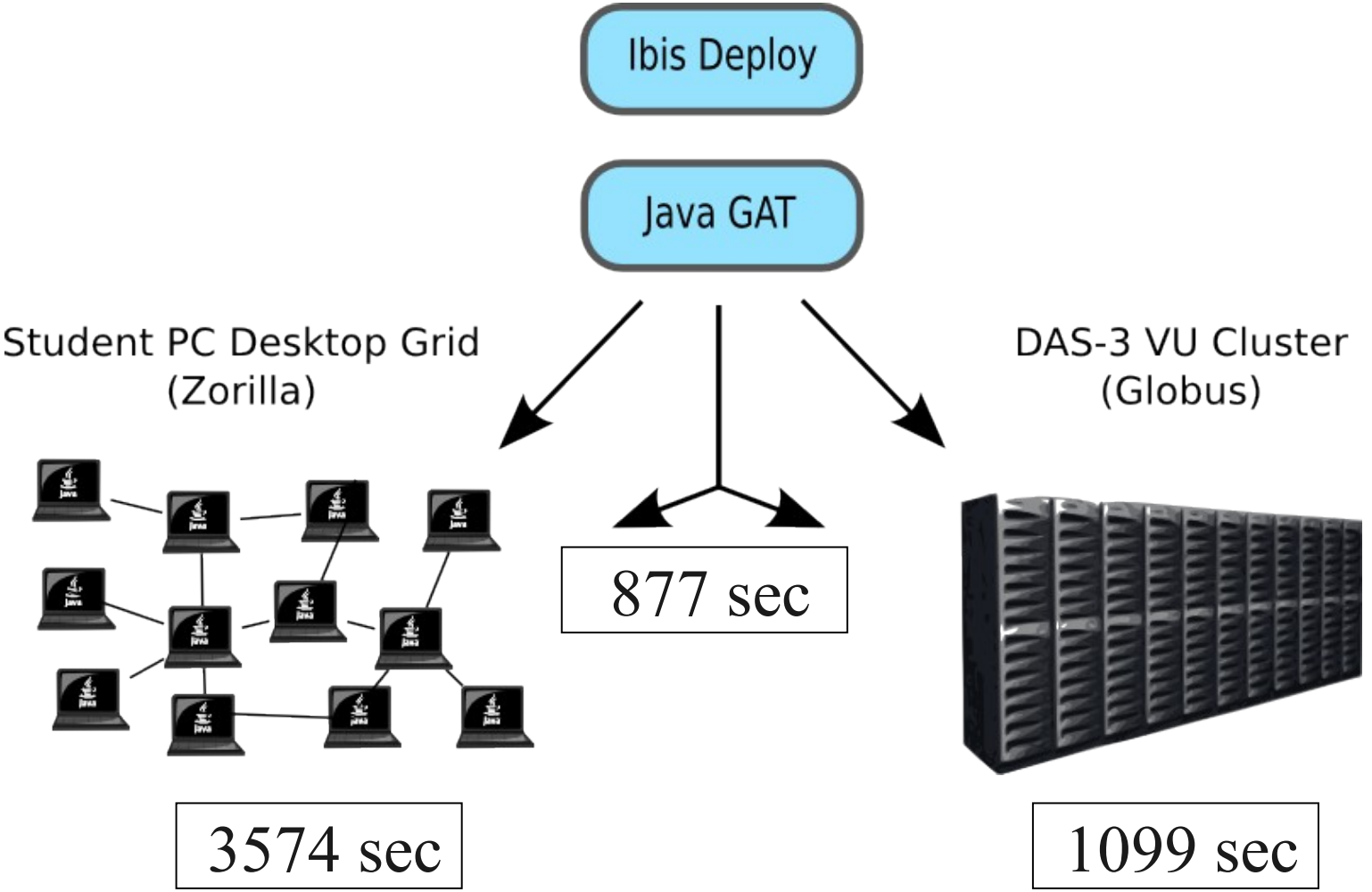
Desktop Grid Experiment

- Small experimental desktop grid setup
  - Student PCs running Zorilla overnight
  - PCs with 1 CPU, 1GB memory, 1Gb/s Ethernet
- Experiment: gene sequence application
  - 16 cores of DAS-3 with Globus
  - 16 core desktop grid with Zorilla
  - Combination, using Ibis-Deploy

Desktop Grid Experiment



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Questions ?

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downloads, more info:
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