

Dependent services

May 15, 2013

1 Experiment Design

Suppose the services have dependencies between each other, e.g., to provide service 1, you must first provide service 2, 3. Any platform must satisfy the service dependencies, but the applications do not need to explicitly specify the required services and all their dependencies.

This is an analog to the Eclipse platforms and their plugins.

2 Implementation

- **ServiceDependencies:** A class to generate dependencies between services, as a DAG
- **MutualisticGraph** (modified): When creating platforms, it makes sure that all to satisfy the dependency.

3 Configuration

`Configuration::NDEP`: How may links to create between services

4 Results

5 Discussion

It seems that currently the results are not obvious at all, and the trend is not coherent! We will try to see if changing the configurations of platform/service/app numbers or use different way to kill platforms will make some more interesting results.

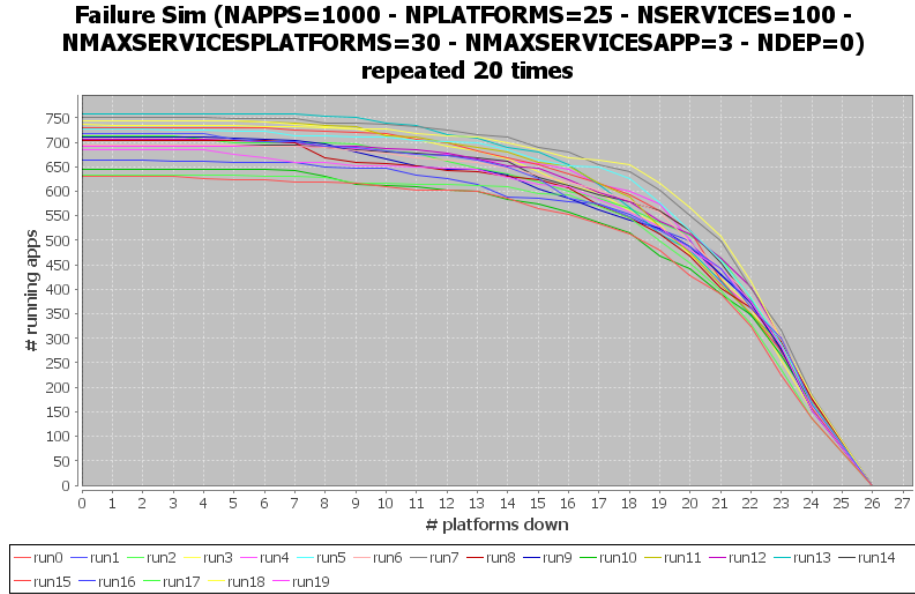


Figure 1: NDEP=0: Same as original experiment

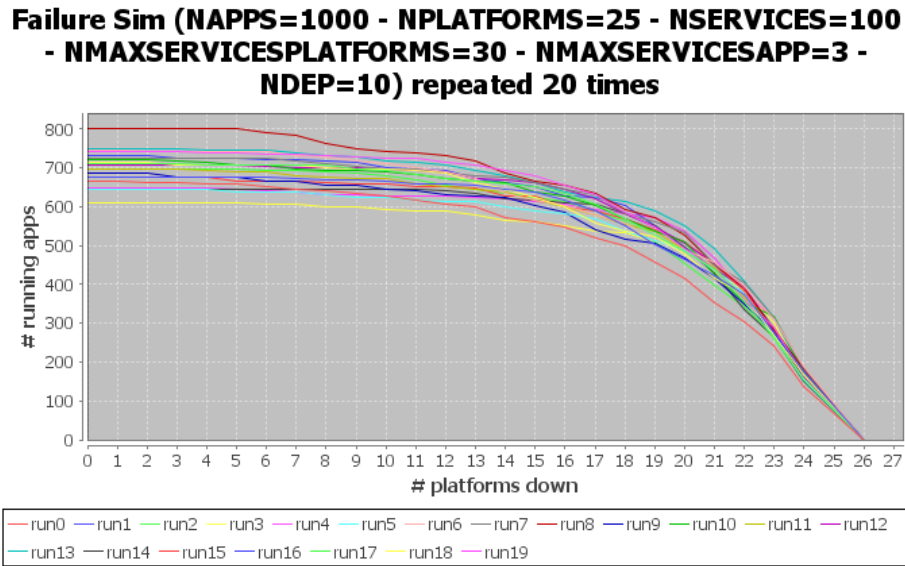


Figure 2: NDEP=10: it seems that that the curve goes down a bit more quickly
(not very sure...)

**Failure Sim (NAPPS=1000 - NPLATFORMS=25 - NSERVICES=100
- NMAXSERVICESPLATFORMS=30 - NMAXSERVICESAPP=3 -
NDEP=20) repeated 20 times**

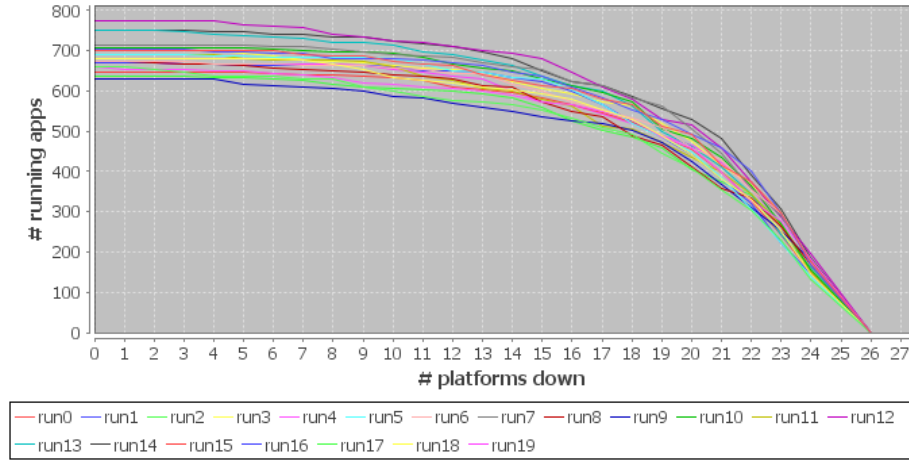


Figure 3: NDEP=20: similar trend?

**Failure Sim (NAPPS=1000 - NPLATFORMS=25 - NSERVICES=100
- NMAXSERVICESPLATFORMS=30 - NMAXSERVICESAPP=3 -
NDEP=50) repeated 20 times**

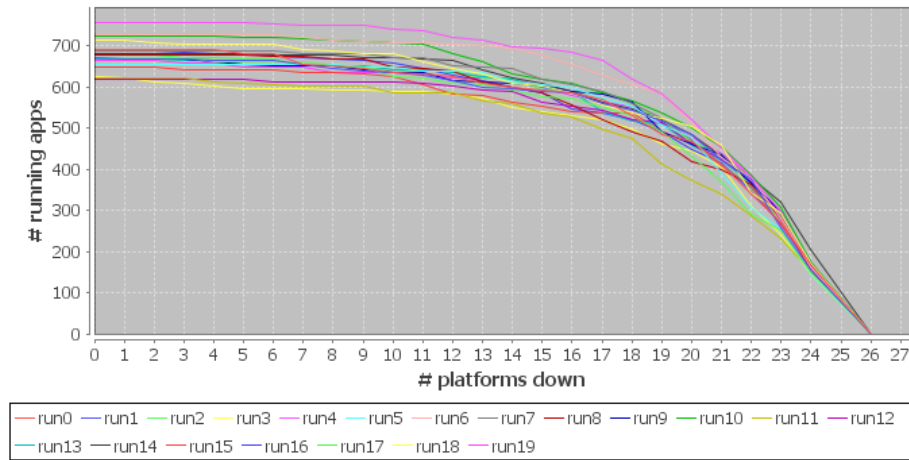


Figure 4: NDEP=50: from smooth curve to staircase curve. Probably because the platforms are homogenized

**Failure Sim (NAPPS=1000 - NPLATFORMS=25 - NSERVICES=100
- NMAXSERVICESPLATFORMS=30 - NMAXSERVICESAPP=3 -
NDEP=100) repeated 20 times**

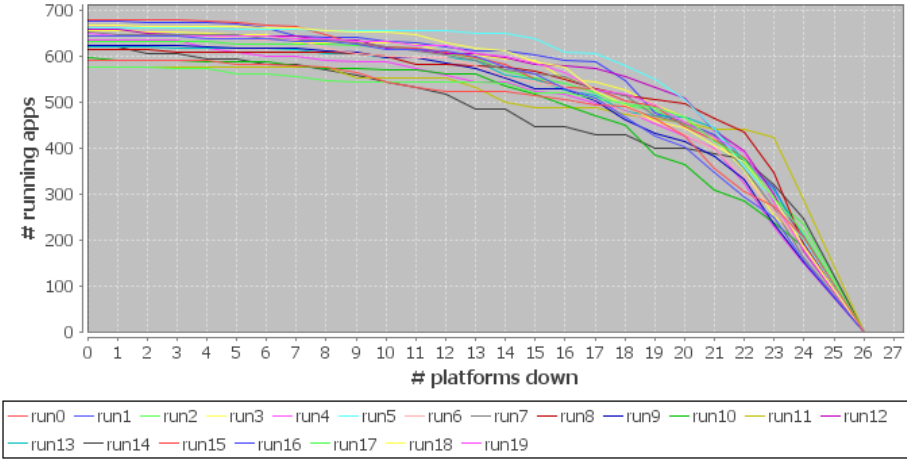


Figure 5: NDEP=100: staircase curve

**Failure Sim (NAPPS=1000 - NPLATFORMS=25 - NSERVICES=100
- NMAXSERVICESPLATFORMS=30 - NMAXSERVICESAPP=3 -
NDEP=300) repeated 20 times**

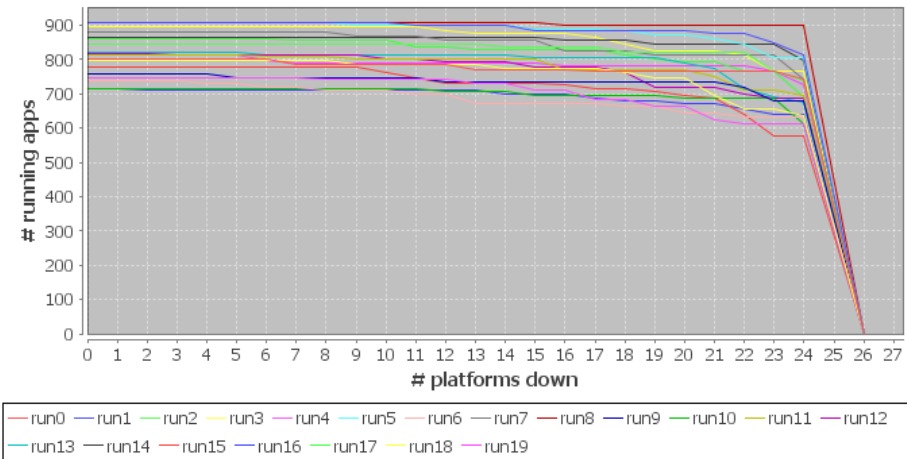


Figure 6: NDEP=300: super staircase curve

**Failure Sim (NAPPS=1000 - NPLATFORMS=25 - NSERVICES=100
- NMAXSERVICESPLATFORMS=30 - NMAXSERVICESAPP=3 -
NDEP=0) repeated 20 times**

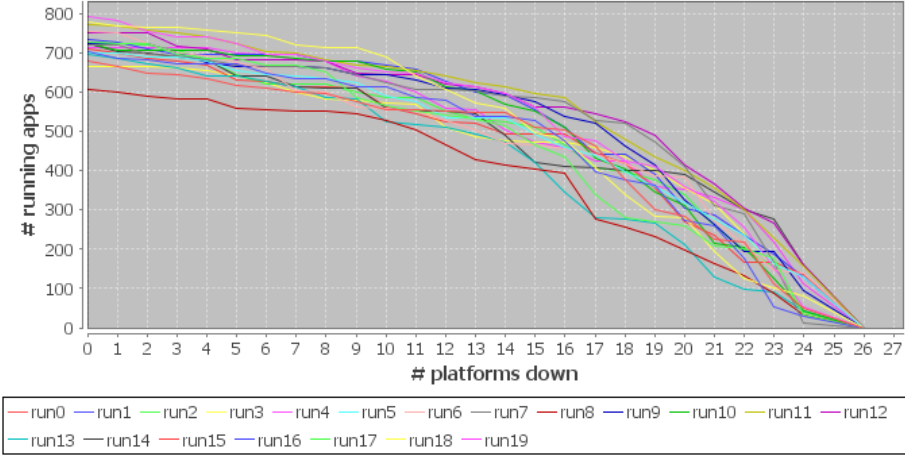


Figure 7: NDEP=0, kill platforms in the same order as they are created: slightly staircase curve(?)

**Failure Sim (NAPPS=1000 - NPLATFORMS=25 - NSERVICES=100
- NMAXSERVICESPLATFORMS=30 - NMAXSERVICESAPP=3 -
NDEP=100) repeated 20 times**

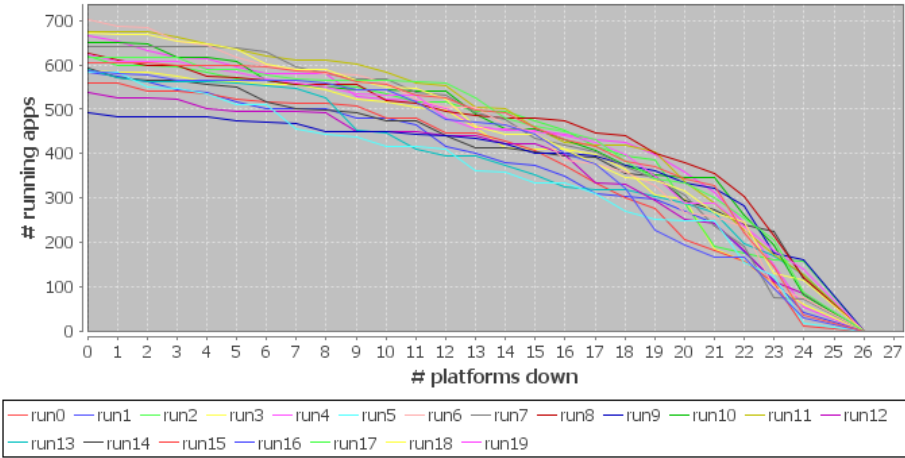


Figure 8: NDEP=300, kill platforms in the same order as they are created: no big difference

**Failure Sim (NAPPS=1000 - NPLATFORMS=25 - NSERVICES=100
- NMAXSERVICESPLATFORMS=30 - NMAXSERVICESAPP=3 -
NDEP=300) repeated 20 times**

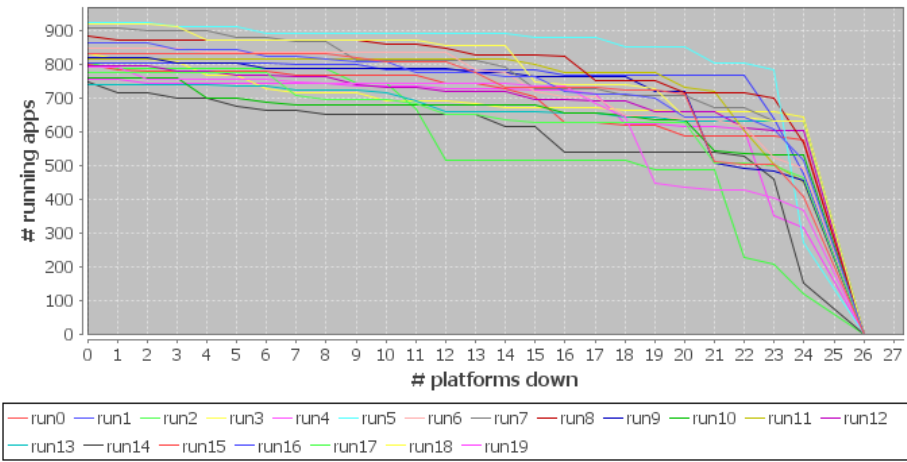


Figure 9: NDEP=300, kill platforms in the same order as they are created:
super staircase curve