GENERAL ASSEMBLY

INTRO TO DATA SCIENCE

LECTURE 18: PARALLEL COMPUTING

Francesco Mosconi
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LAST TIMES:

- NAÏVE BAYES
- PLOT.LY
- HISTORY OF MACHINE LEARNING

QUESTIONS?

AGENDA

I. INTRO TO CLUSTER COMPUTING

II. LAB: PARALLEL PARAMETER GRID SEARCH

I. CLUSTER COMPUTING WHAT, WHY, HOW

Q: What is a cluster?

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A: A **computer cluster** consists of a set of **connected computers** that **work together** so that in many respects they can be viewed as a **single system**.

http://en.wikipedia.org/wiki/Computer_cluster

Q: Why use a cluster?

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A: General and Specific reasons

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A: General:

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- Elasticity: add and remove resources
- Availability: launch jobs through API

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Specific to Data Science:

- Distributed Map Reduce
- Data doesn't fit in memory

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A: Different topologies

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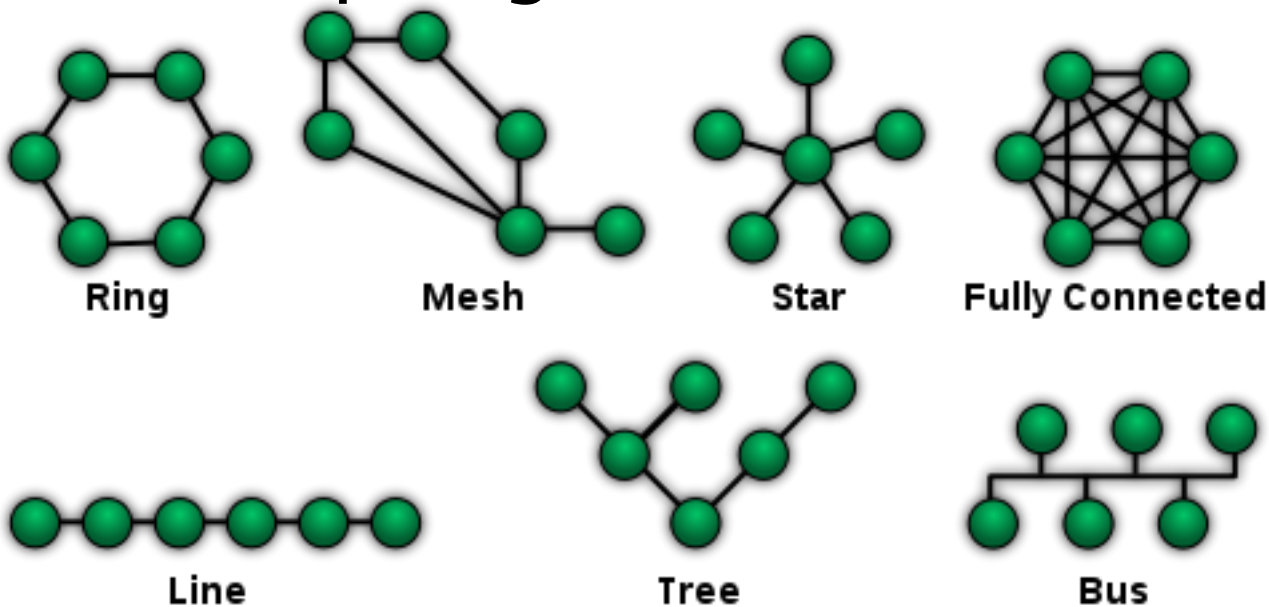

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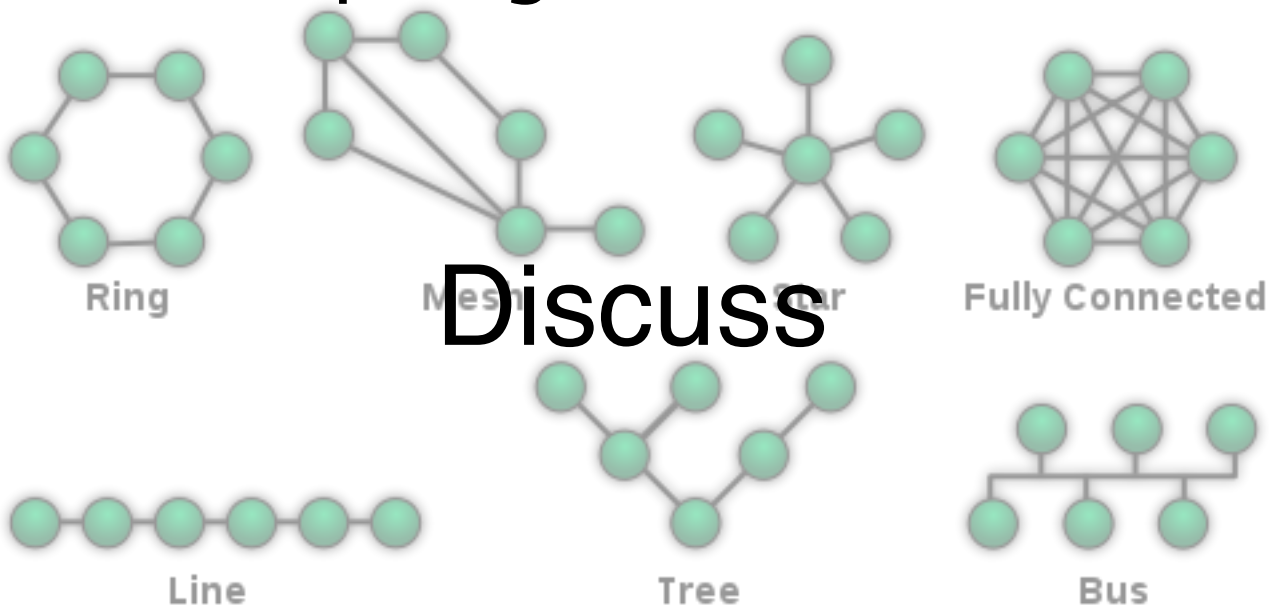

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A:

- Better performance: max 3 dev and 2 links
- Isolation: non-centralized failure no effect
- Centralization: control, fault detection
- Easy Install and config

Q: Features of a cluster?

Q: Features of a star cluster?
A:

- Dispatch jobs to whole cluster
- Control individual nodes
- Shared memory

II. LAB: IPYTHON PARALLEL