

The Resource Leveled Project Schedule: *The Good, The Bad, The Ugly!*

Tallahassee Florida PMI Chapter

August 2005

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**“The Critical Path Method
is a feasible way
to generate an
infeasible schedule.”**

Well known assumptions of the Critical Path Method

- **All tasks are identified**
- **Relationships between tasks are known**
- **Durations of tasks are known**

The not so well known assumption of the Critical Path Method

- **Unlimited Resources**

- **People**

- **Cash**

- **Facilities**



**You can produce a valid
resource leveled project
schedule.**

The Good!

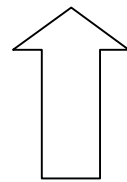
**When you resource level a
real world sized project it is
impossible to determine the
best schedule.**

The Bad!

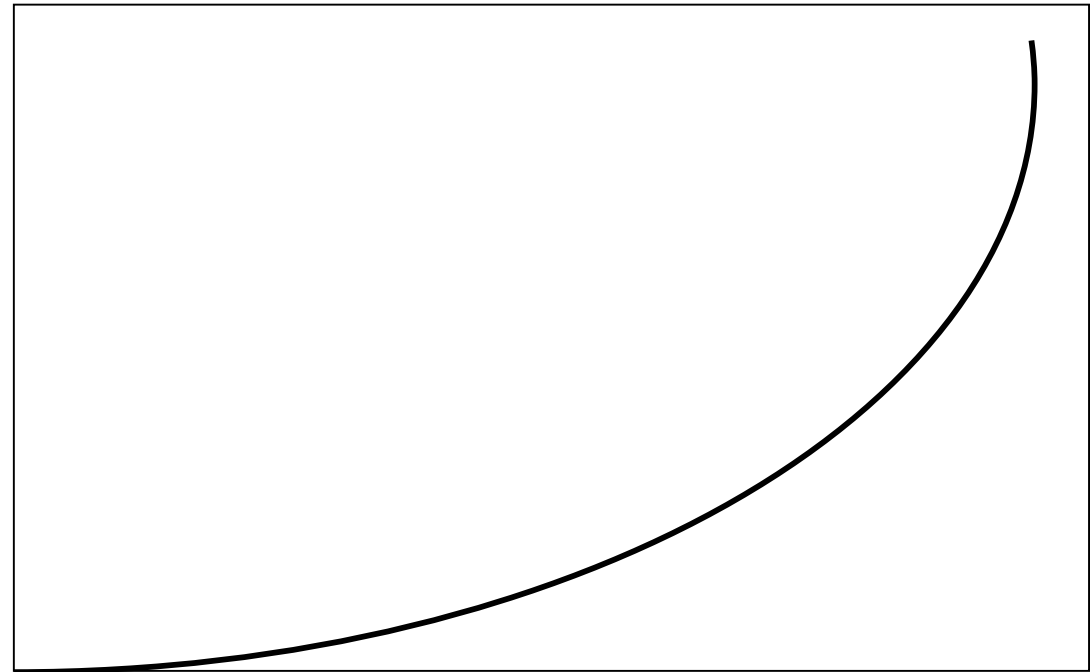
Resource Levelled Project Scheduling

The Project Scheduling Challenge

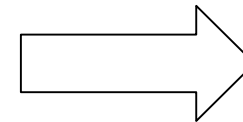
The number of possible ways the project could be scheduled



Solution Space



Project Size



The Bad!

**In the majority of cases
the critical path is to
project management as a
pacifier is to a baby.
*It gives a calming
effect but provides
no nutritional value.***

**THE
UGLY**

**THE
UGLY**

Warning!

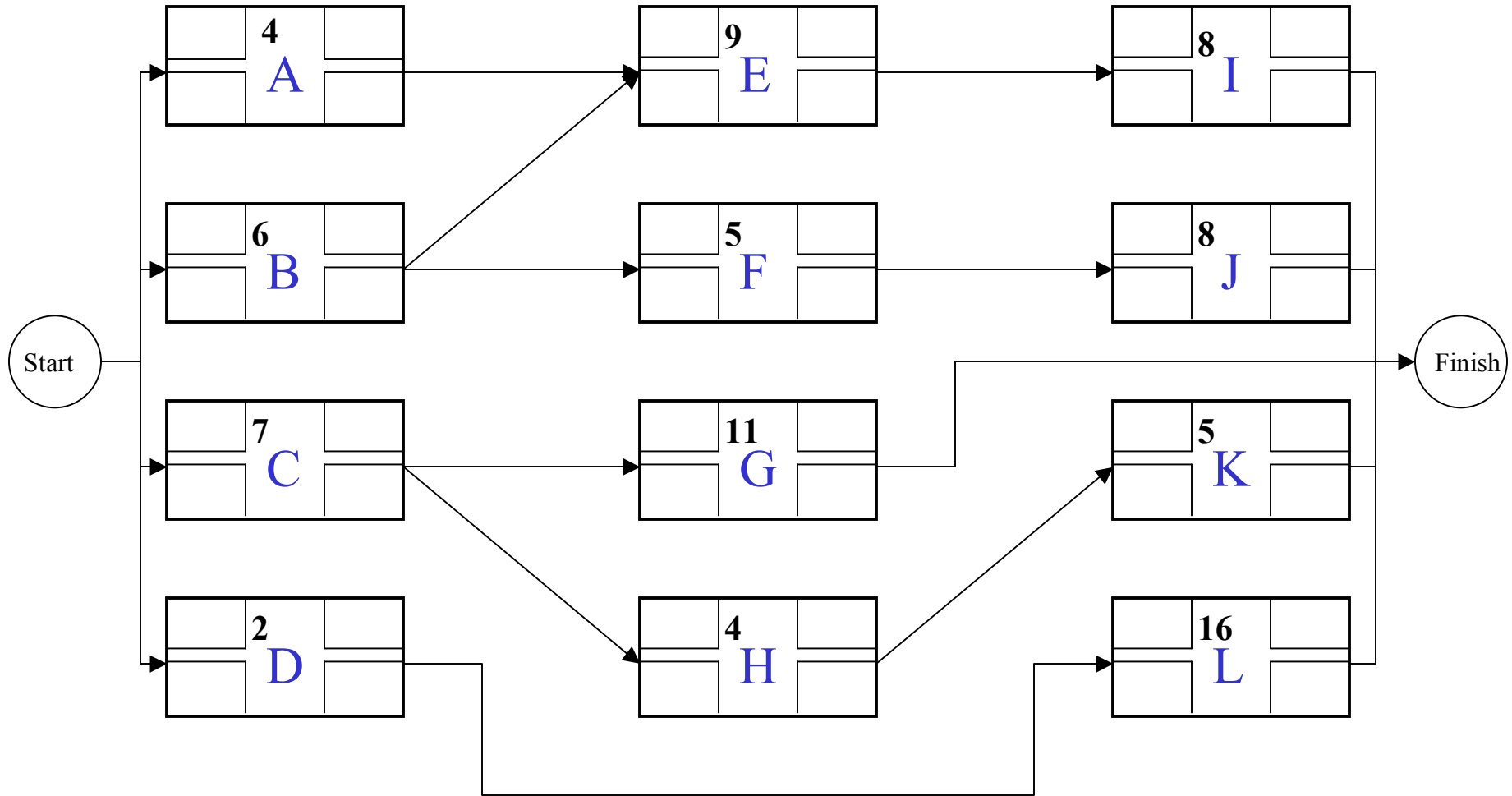
Proceeding past this point in the presentation may cause you undue stress, anxiety and fatigue on future projects.

Please proceed at your own comfort level.

**Lets explore what's
UGLY!**

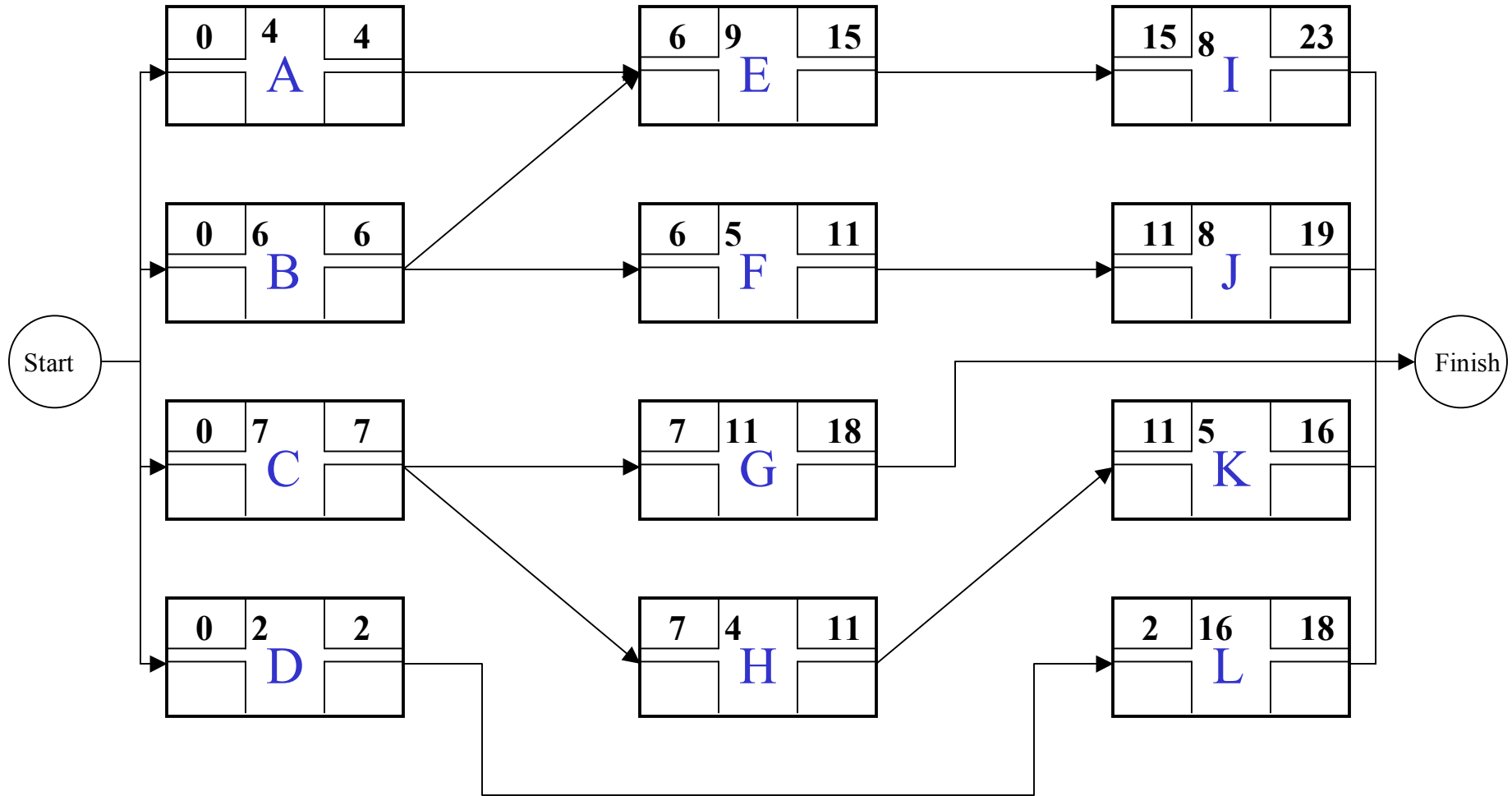
Professional driver, closed course!

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Critical Path Method

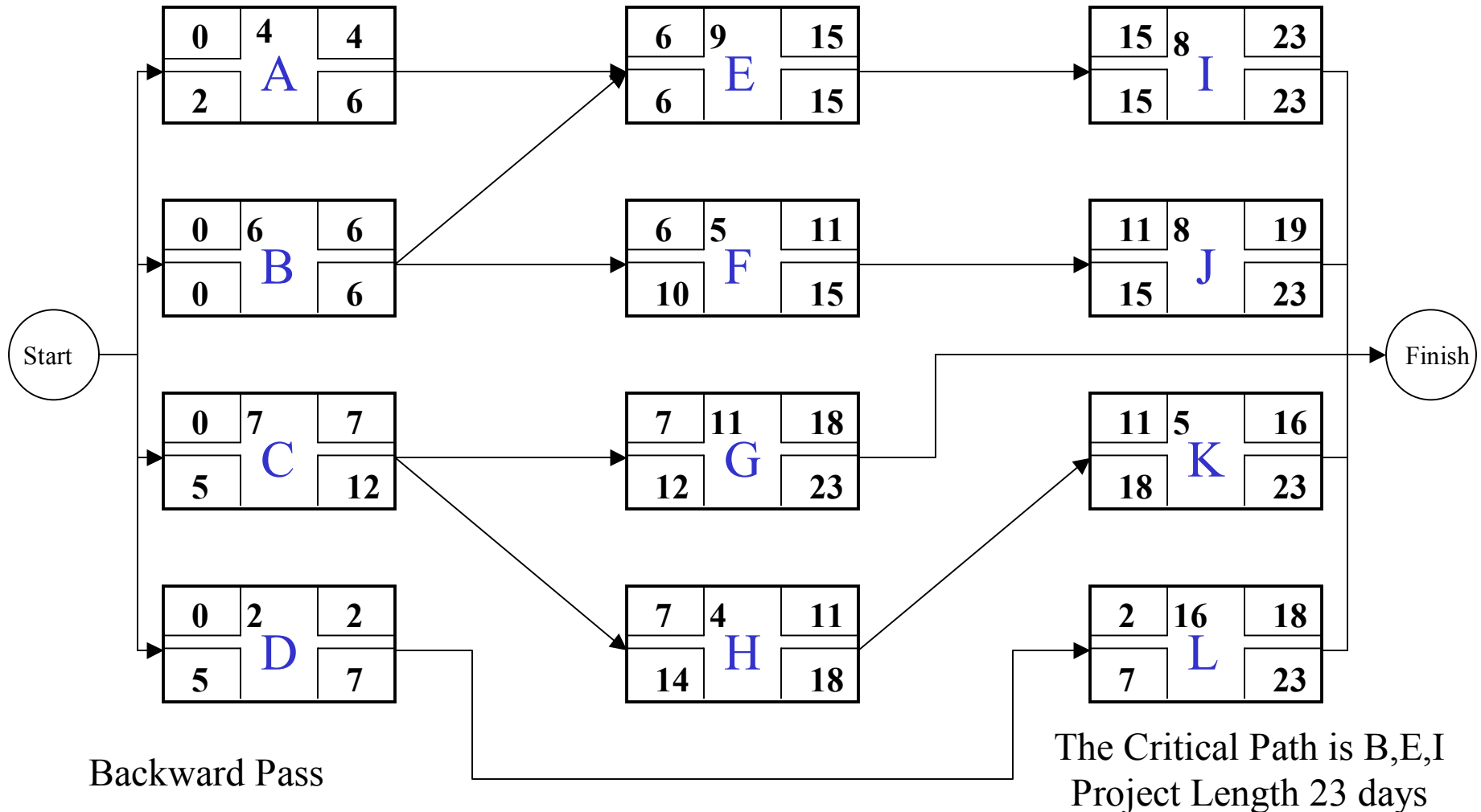
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Forward Pass

Critical Path Method

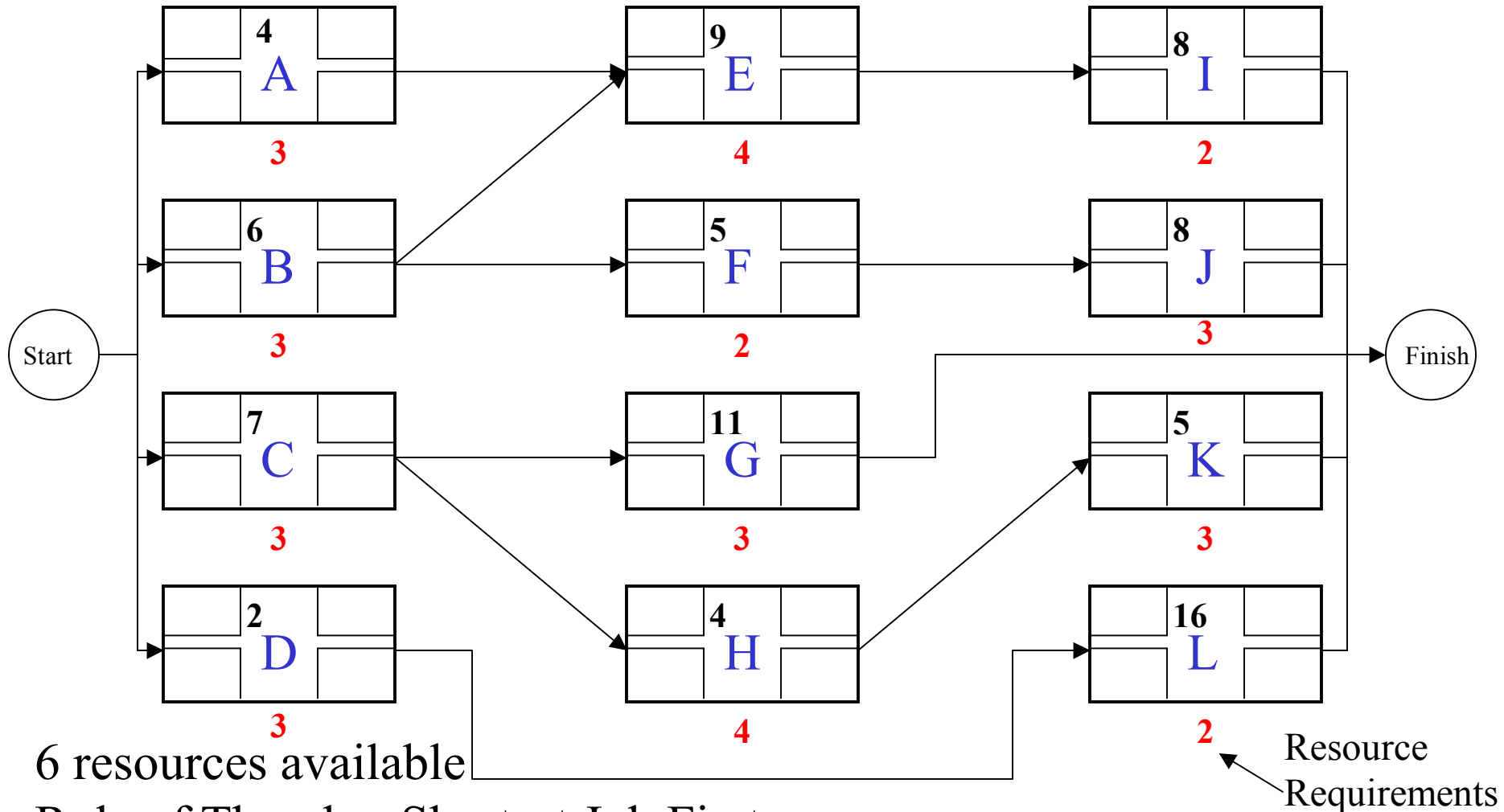
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Critical Path Method

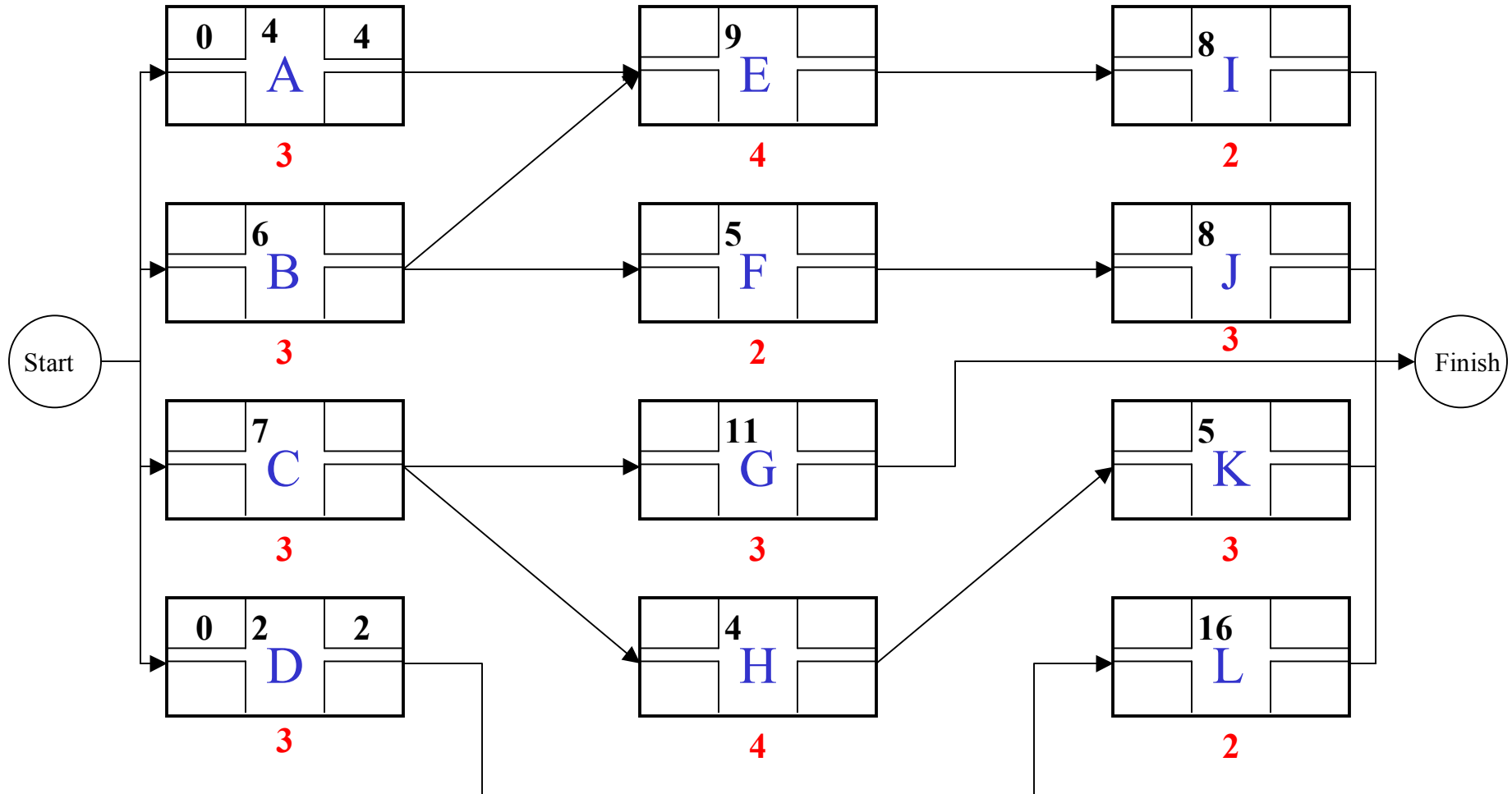
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Resource Leveling



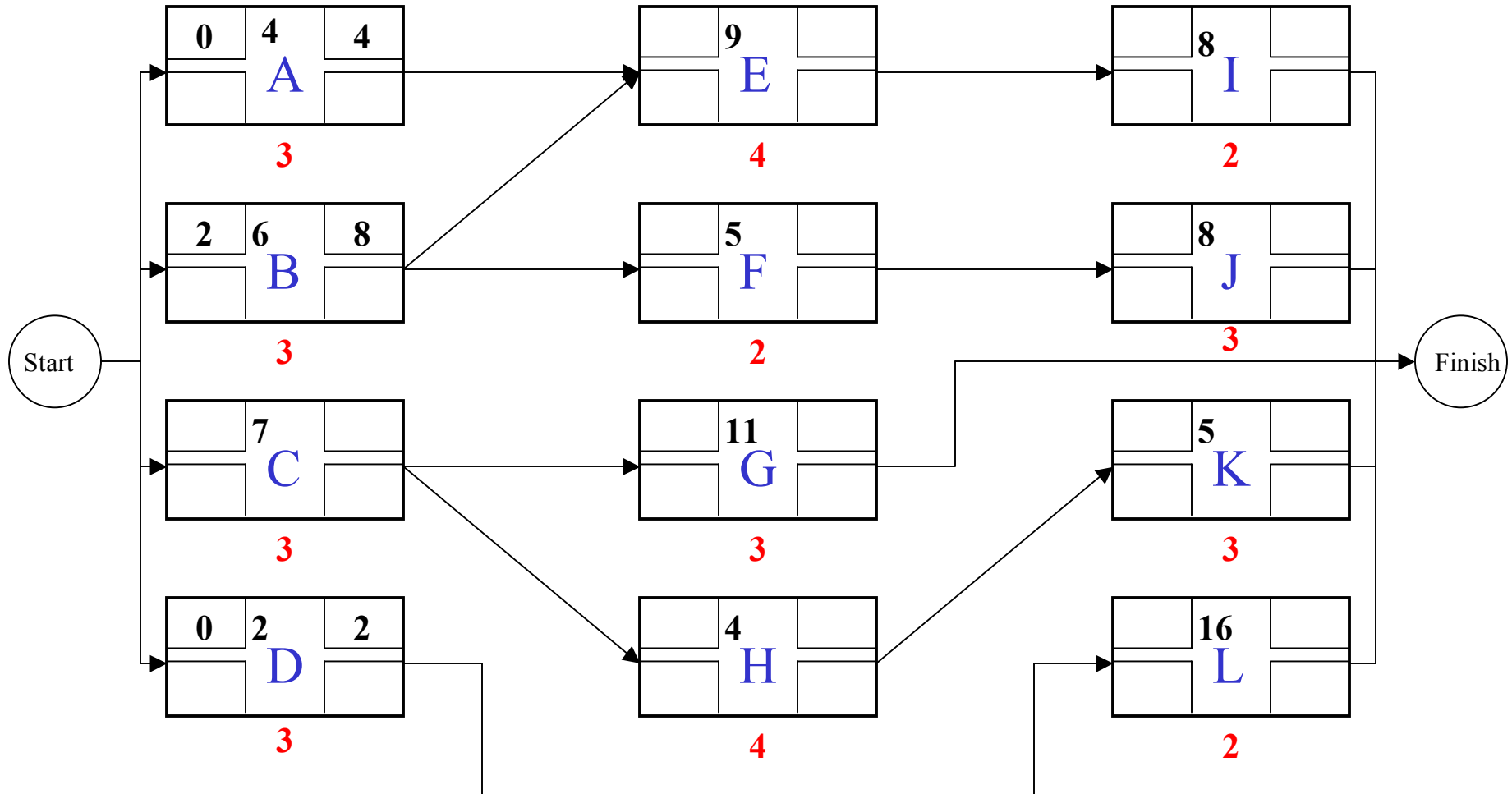
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Resource Leveling Cycle 1



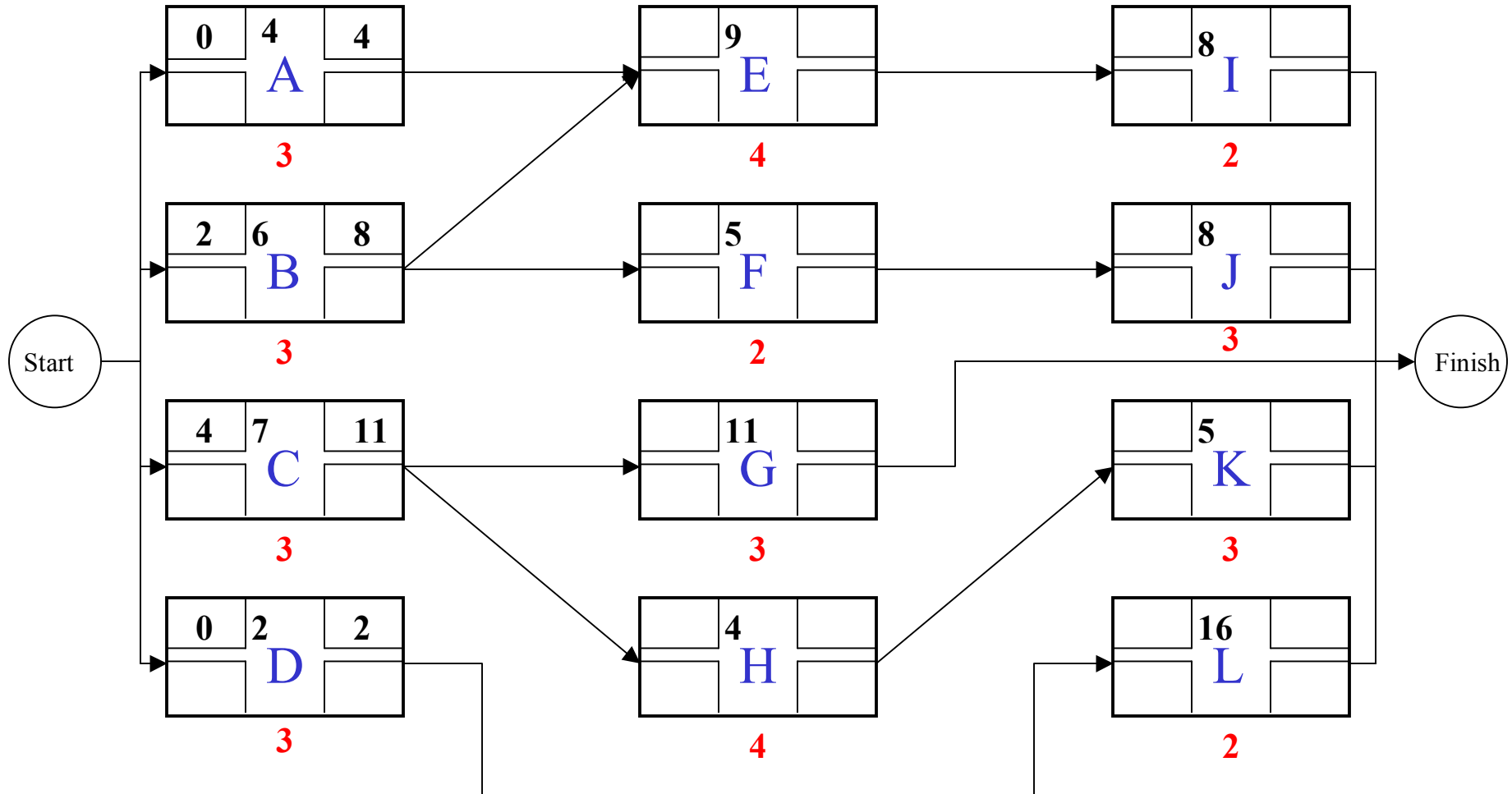
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Resource Leveling Cycle 2



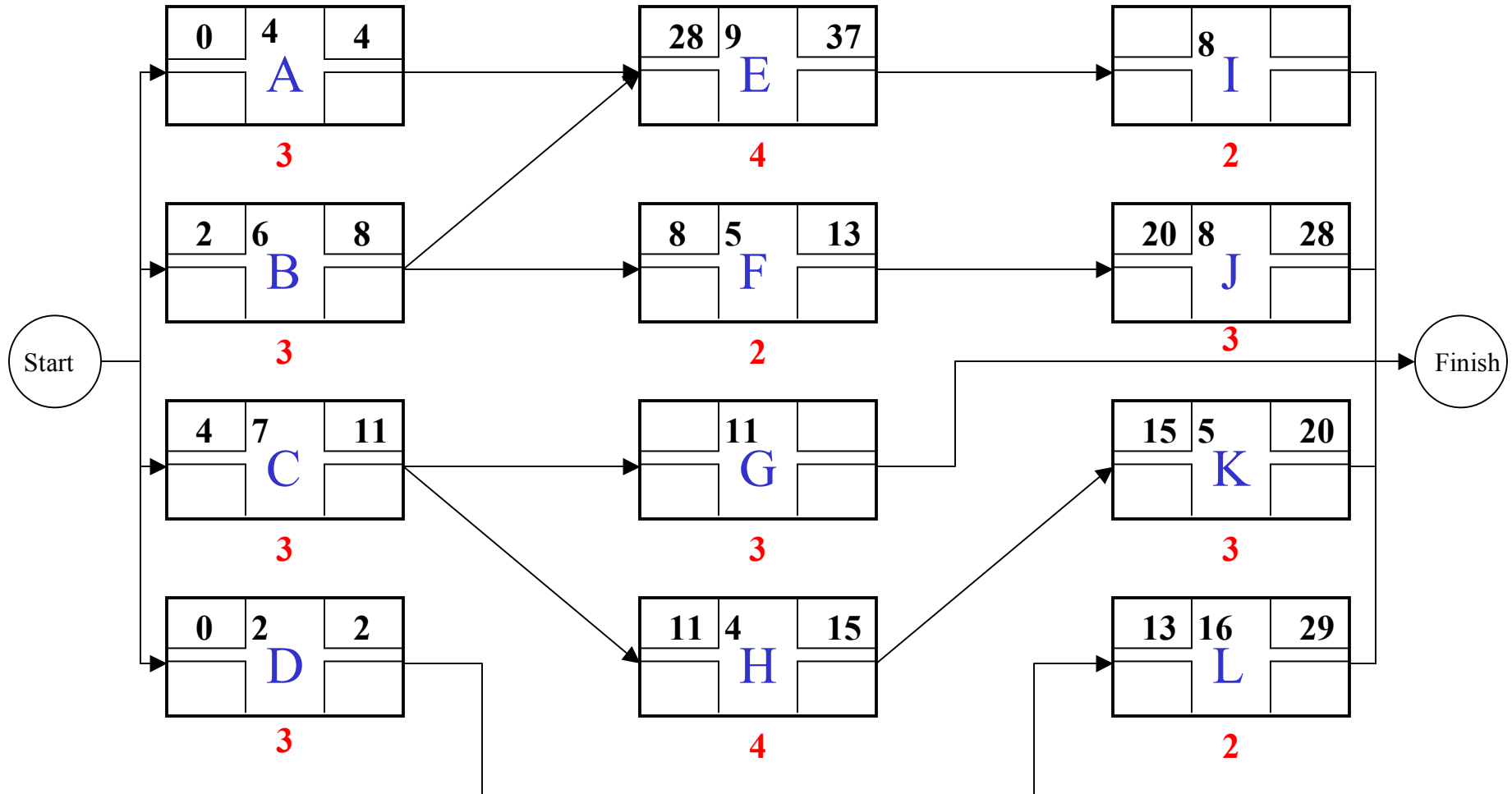
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Resource Leveling Cycle 3



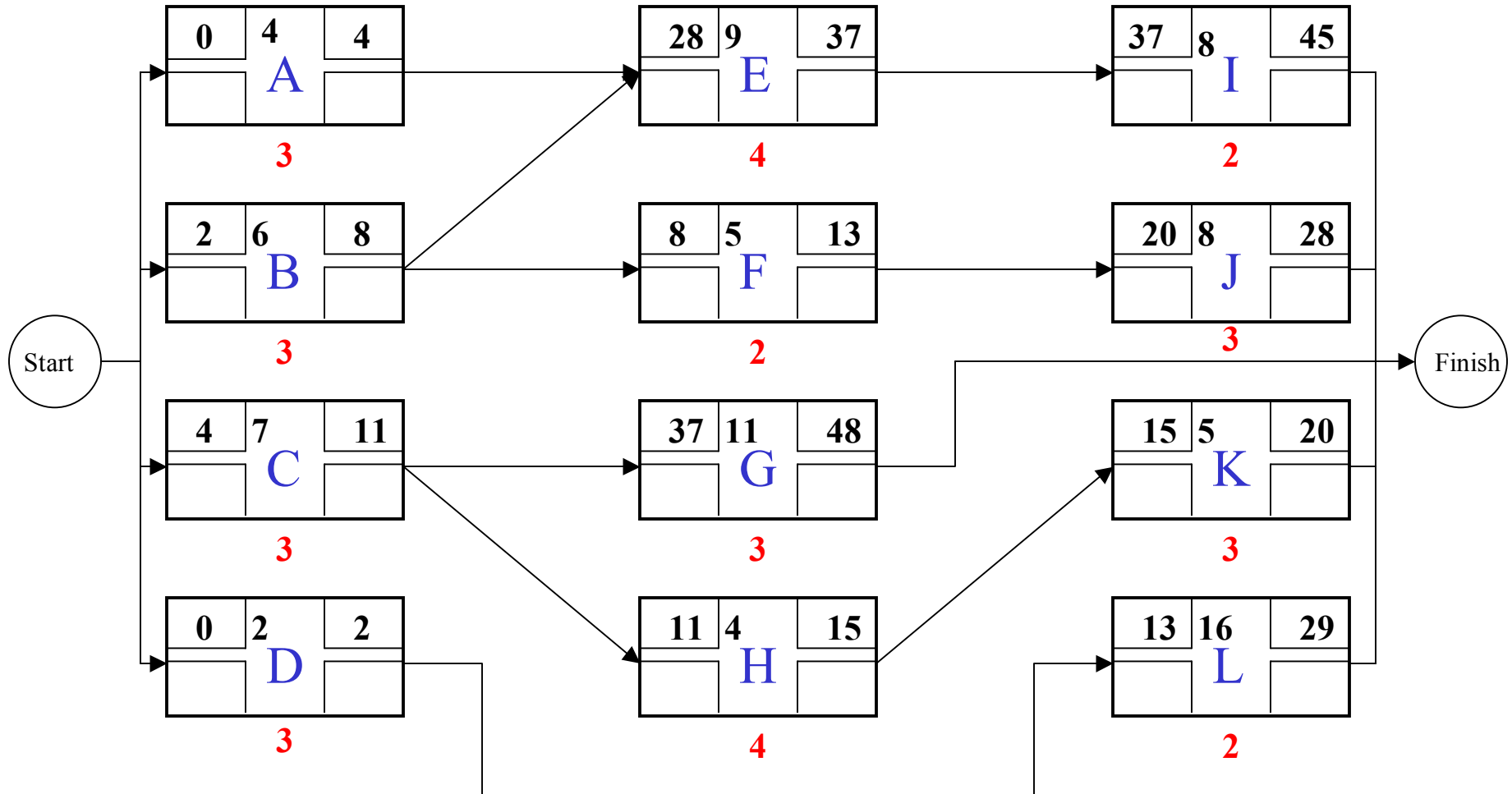
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Resource Leveling Cycle 10



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Resource Leveling Cycle 11



Where is the Critical Path?

How many of you have worked on a project where?

- All resource requirements were known for all activities and no changes occurred during the project?
- All available resources were identified and scheduled at the start of the project with no changes?
- No activities or tasks were added or removed from the project?

How many of you have worked on a project where?

- All relationships or dependencies for all tasks were known at the start and did not change?
- All tasks durations were known and did not change?

If any of the changes outlined above occur you have a high probability of a critical path change in a resource leveled schedule!

MANAGE EVERYTHING LIKE IT MAY BE CRITICAL!

Summary

- To have a valid schedule you must resource level.
- There is significant variation in resource leveling performance among project management software packages.
- The critical path identified without resource leveling does not mean it is the critical path when the project is resource leveled.

Summary

- Projects are dynamic where any changes may change the schedule and the critical path.
- You must manage all tasks as if they may be critical and the project manager can't focus solely on critical path items.

QUESTIONS

Dr. James T. Brown PE PMP

James T. Brown Ph.D., president of **SEBA™ Solutions Inc.**, has provided training and consulting services for dozens of companies nationally and internationally. He has sixteen years of NASA experience that includes "hands on" experience as a team member, project manager and serving in executive level organizational leadership roles. A recognized authority in project management, he is a frequently invited speaker on project management areas of interest.

Dr. Brown has a patent for a project scheduling methodology, and has received numerous awards including "*Teacher of the Year*" for Industrial Engineering from the Florida A&M/Florida State University College of Engineering and "*Engineer of the Year*" from the Cape Canaveral Technical Societies.

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