14
Hatching a Catastrophe

Hatching a Catastrophe

- Milestones or Millstones?
- "The Other Piece is Late, Anyway"
- Under the Rug

Day-by-day slippage

- Project delay is rarely caused by a major calamity
- Day-by-day slippage is much more common, and
- Harder to detect, to prevent and to recover from
    - The machines are down
    - Lightning took the power out
    - The target hardware is late
    - Snow days; jury duty; family problems
    - Customer meetings; audits; celebrations

Milestones

- Must be concrete, specific and measurable
- To prevent "90% done" for the most of the time
- Concrete milestones are 100%-done events
    - Architects and implementers sign specification
    - Source code is comitted to the repository
    - All test cases pass
- Must be verifiable by the boss, to avoid perpetual optimism by the reporting project manager

Estimation psychology

- Studies of government contractors showed that estimation accuracy changed as the activity start and end dates approached
  - Pre-activity estimates did not change, regardless of how wrong they turned out to be
  - Overestimates steadily decreased as the activity proceeded
  - Underestimates did not change until about 3 weeks before the scheduled completion

Milestone morale

- Sharp milestones help everyone, including staff
- Chronic schedule slippage kills morale

- Why?

- "Make no small slips"

Hustle and buffers

- Staff hustle provides calendar buffers by completing tasks sooner than necessary
- Excessive hustle drains energy, expending human resource buffers through burnout and turnover
- Program Evaluation and Review Technique (PERT) provides a rationale for balancing buffers
- Critical path analysis reveals whose slips
  - Matter now, i.e., are on the critical path
  - Might matter, i.e., are close to the critical path

Honesty irony

- A project manager's report of slippage may prompt to a boss to act
- A boss that acts may
  - Undermine the manager's authority
  - Foul up the manager's other plans
- The manager strives to
  - Solve most problems locally
  - Reveal as little slippage as possible

Reducing role conflict

- The boss should
  - Not act on problems that a manager can solve
  - Never act on problems during status review
- Brooks suggests labeling meetings accordingly
  - Status review: Report and listen without acting
  - Problem resolution: Act with concurrence
- Separate meetings encourages reason and buy-in

Yanking the rug off

- Review (with boss) regularly, e.g., weekly
- Review subprojects in round-robin, e.g., monthly
- Circulate summary status reports in advance
- Apply explicit, objective evaluation criteria
- Ask manager for explanations, revised estimates, remedial actions and whatever help is needed
- Analyse impact on critical path via PERT chart

Yanking the rug off diplomatically

- Norm suggests...
- Putting the project manager in charge, as Chair
  - To reassert authority and responsibility
- Wrapping up with "How are things going?"
  - To gauge and boost morale
  - To open channels for asking for help
  - To offer non-intrusive advice
  - To keep things in healthy perspective

S/360 example of Feb 1, 1965

- The specification approval is overdue by three weeks on five projects and four weeks onn one
- The 2250 project is overdue by a few days on the SRL (manual) approval and the Alpha Test exit
- The NPL-H project enters Alpha Test today
- Which project is in the worst shape?
- How much calendar time does it have to recover before becoming evident to the customer?

Separate schedule and estimates

- Vyssotsky of Bell Labs suggests estimated completion dates beside official scheduled dates
  - The project manager sets the scheduled dates which are reasonable for the project as a whole
  - The lowest-level manager or staffer that is responsible for a component sets its estimate
  - The manager encourages realistic estimates over optimistic or conservative ones
- This preserves global visibility and local realism

Project control group

- A small project control group extends the boss
  - Handles the paperwork of collecting managers' status data and summarizing compared to plan
  - Must be skilled, enthusiastic and diplomatic
- Brooks hints at the risk inherent in such a group as a constant irritant to the managers and staff

Project control group revisited

- Norm warns against a separate control group as
  - Undermining a critical communication link
  - Deflecting accountability to an offline group
  - Setting the stage for anymosity
- Modern planning and tracking software reduces the effort of updating and communicating status
- The best assistance comes purely as administrative support to existing project roles

Network diagram

- From NetMBA Business Knowledge Center
  `http://www.netmba.com/operations/project/pert/`
- Two project tasks are dependent if the output from one feeds into the input of the other
- Dependent tasks must be performed serially
- Independent tasks can be performed in parallel
- A network diagram shows task dependancies
- Tasks can be shown on node or on arc

Critical Path Method and PERT

- PERT and CPM were developed in the 1950's
- Critical Path Method uses a fixed task duration
- Program Evaluation and Review Technique models task duration with probabilistic bounds
- The terms PERT, CPM and PERT/CPM are commonly used interchangeably
- These notes assume fixed task duration unless stated otherwise

Example PERT chart
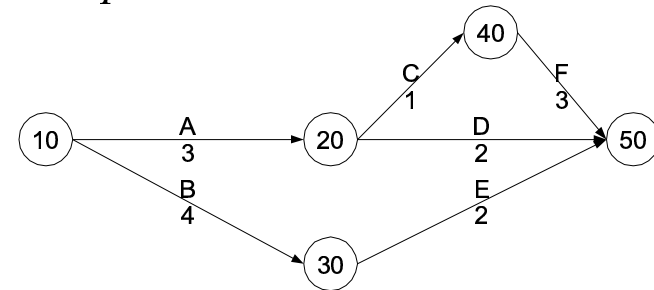
- Activity on arc; Initial node 10; Terminal node 50
- Critical path?

Example software PERT chart
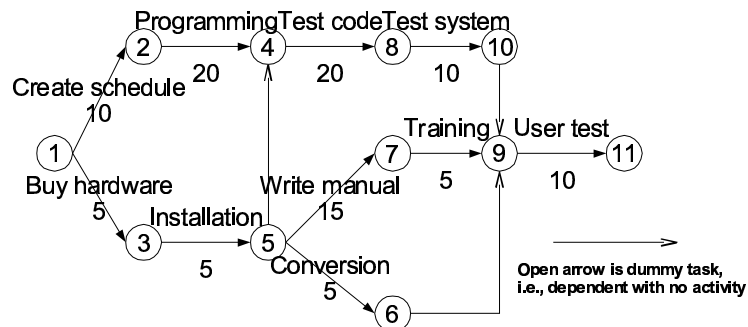
- From Tech Target Network
  http://whatis.techtarget.com/definition/0,,sid9_gci331391,00.html

PERT chart attributes

- Shows activity dependency graphically, i.e., reveals potential activity concurrency
- Shows duration of task textually
- Does not show calendar time of task
- Does not show percent complete

- Can identify activity resources textually
- Does not show resource dependency, i.e., does not show actual activity concurrency

Example Gantt chart
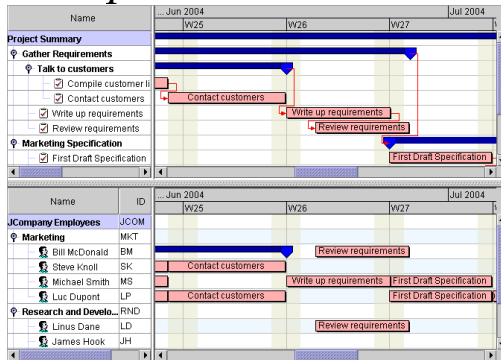
Activity view

Resource view

- From ILOG Software
  `http://www.ilog.com/products/jviews/gantt/`

Gantt chart attributes

- Can show activity dependency graphically
- Shows duration of task graphically
- Shows calendar time of task graphically
- Can show percent complete

- Can show activity resources graphically
- Can show resource contingency graphically