

Lecture #24

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So far...

❖ Networks showing:

- ❑ Time
- ❑ Distance
- ❑ Cost

❖ Today – Flow Networks

Flows in Networks

Network	Nodes	Arcs	Flow
communication	telephone exchanges, computers, satellites	cables, fiber optics, microwave relays	voice, video, packets
circuits	gates, registers, processors	wires	current
mechanical	joints	rods, beams, springs	heat, energy
hydraulic	reservoirs, pumping stations, lakes	pipelines	fluid, oil
financial	stocks, currency	transactions	money
transportation	airports, rail yards, street intersections	highways, railbeds, airway routes	freight, vehicles, passengers
chemical	sites	bonds	energy

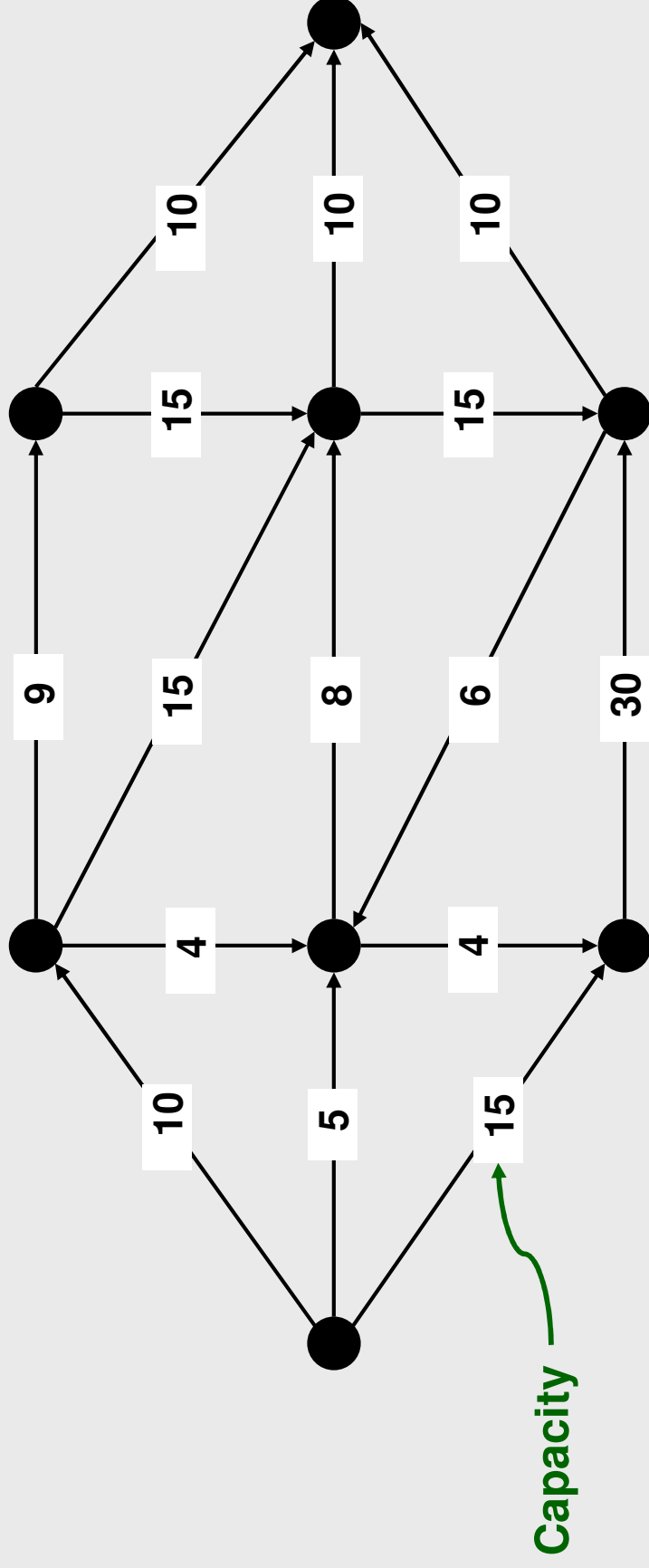
Kerr, 2004

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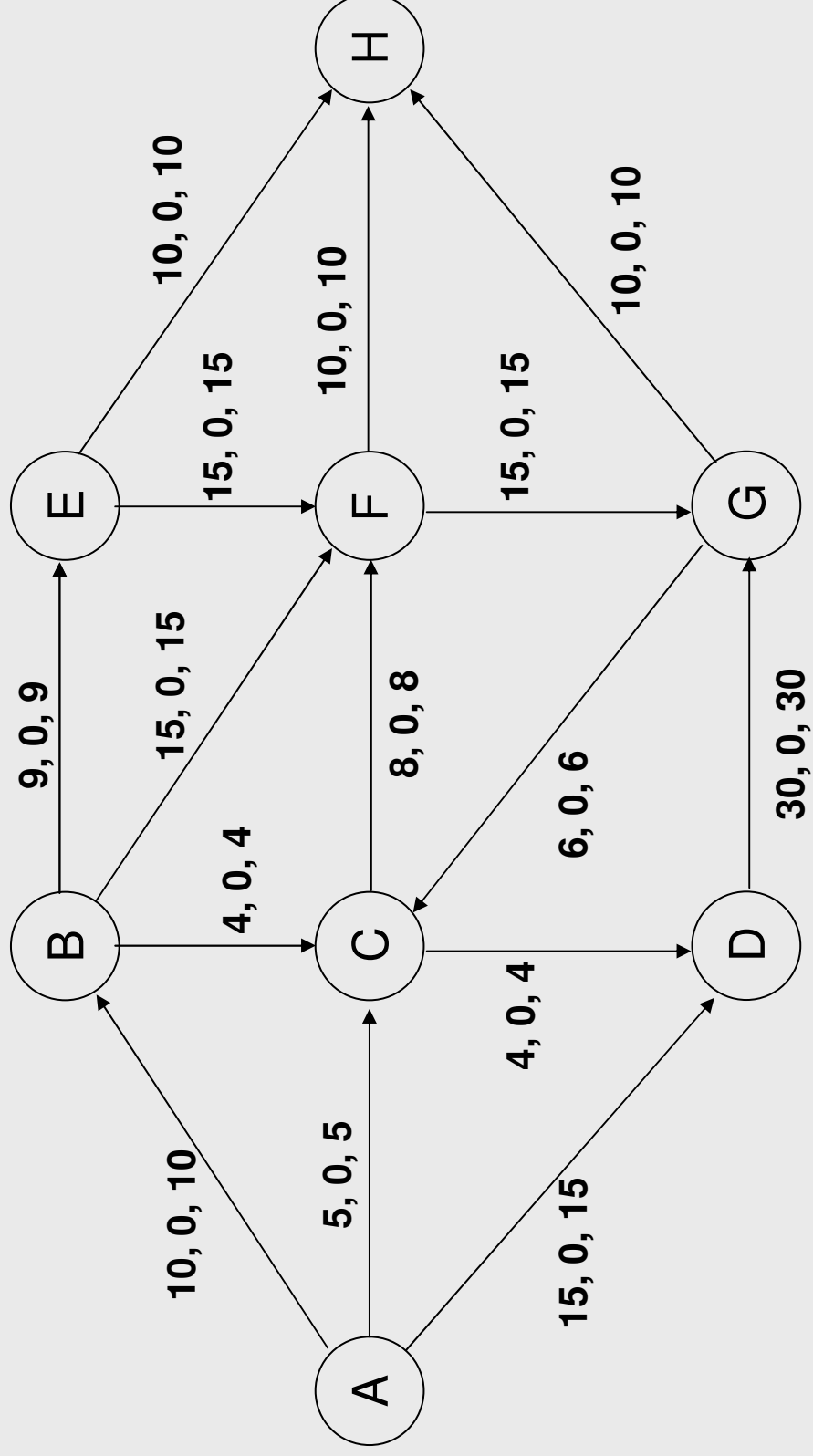
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Flow Network

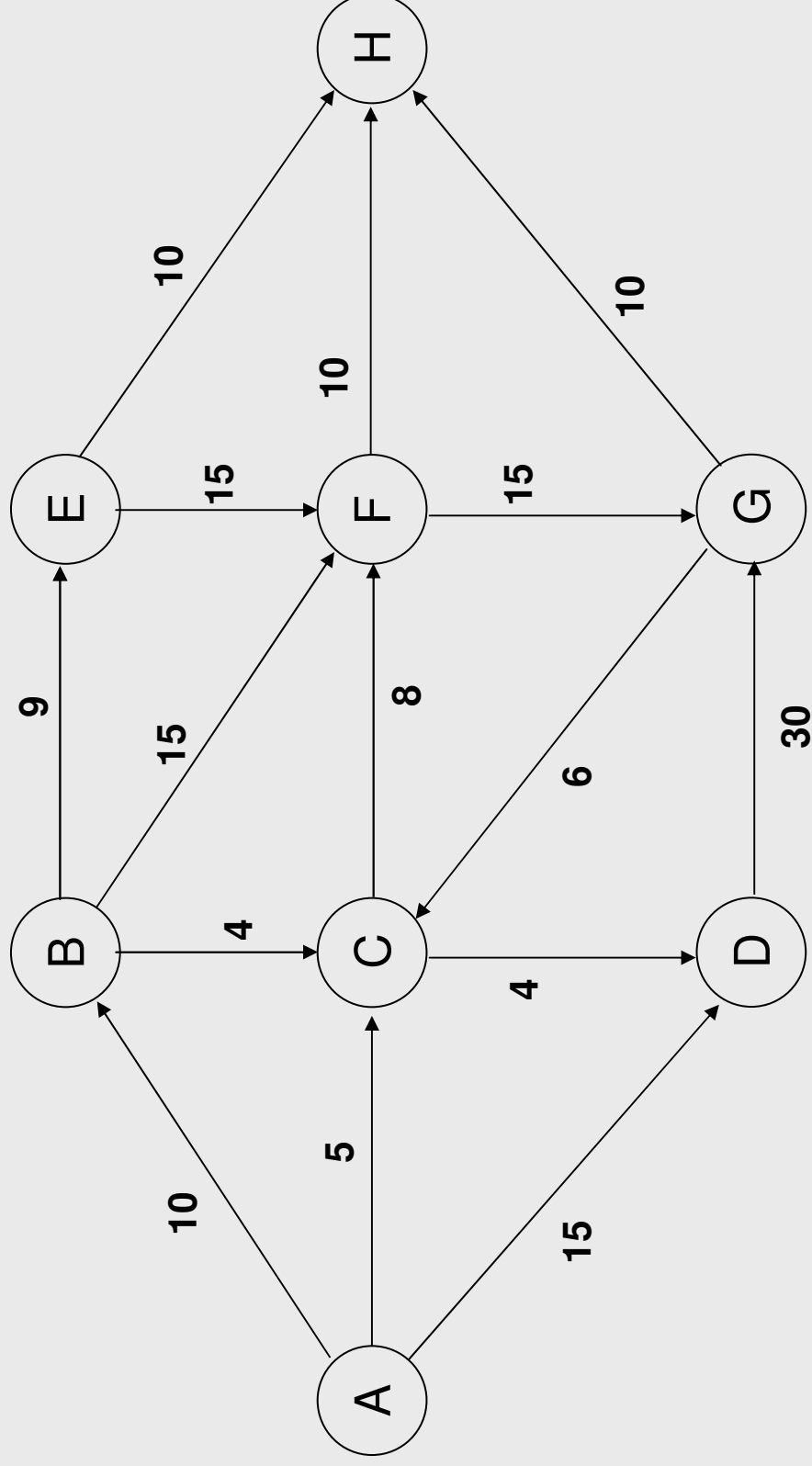


Kerr, 2004

Max Flow



Cuts – Min & Max Flow



A Final Activity Example

- ❖ When St. Vincent's Hospital moved from a 373-bed facility in Portland, Oregon, to a new 403-bed building in the suburbs five miles away, a large variety of planning considerations had to be taken into account.
- ❖ To coordinate all the activities, a project network was developed and used as a basic planning tool eight months before the move.
- ❖ Simplified version

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graph LR
    Start((Start)) --> MeetCity[Meet with city traffic engs.]
    Start --> MeetHeads[Meet with department heads]
    Start --> Appoint[Appoint move advisory committee]
    Start --> PlanPub[Plan public relations activities]
    Start --> PrelimMeet[Preliminary meetings with police]
    Start --> DevelopPolice[Develop police assistance plan]
    
    MeetCity --> DevPrel[Develop preliminary move plan]
    MeetHeads --> DevPrel
    
    DevPrel -.-> DevFinal[Develop final move plan]
    DevPrel --> Appoint
    
    Appoint --> EstPol[Establish move admissions policies]
    EstPol -.-> DevFinal
    
    EstPol --> DevPaper[Develop paperwork forms related to patients]
    DevPaper --> Implement[Implement premove admissions policies]
    Implement --> PatientMove[Patient move]
    
    PatientMove --> Security[Security at old hospital]
    Security --> End((End))
    
    PrelimMeet --> PlanDed[Plan dedication]
    PlanDed --> Dedication[Dedication]
    Dedication --> End
    
    DevPolice --> End
  
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