Aurora-Gov: Gratis full PM tool for government employees
&
Aurora-Viewer free P6 viewer for all

Rob Richards, Ph.D.
June 24, 2026

National Shipbuilding Research Program (NSRP)
Business Technologies (BT) Joint Panel Meeting
Baltimore Maryland
June 23 - 25, 2026

Stottler Henke

Aurora-Gov Summary

World's most intelligent scheduling engine with real-world modeling capabilities

- Model more real-world details
- Multiple-pass intelligent resource-constrained scheduling
  - Shorter real-world projects / faster throughput

Aurora Capabilities Beyond P6

Project Planning/ Modeling

Concurrent constraints
Non-Concurrent constraints
Absolute FInish-to-Constraint: successor task starts immediately
Advanced offset (lead and lag) to account for actual progress on related task, not just a fixed time
Maximum lag constraint, which initiates a countdown or expiration period when one task starts, setting a time limit for the commencement of a related task.
Preferred Resources – This allows the user to specify a preference order when defining a set of resources that are mostly interchangeable. E.g., Prefer work in default shop Prefer work by tech, but supervisor can substitute Prefer certain equipment Prefer certain lab space Use consistent auditors for a client
More powerful variable duration activities – This allows the user to specify that a job could use more people and get done more quickly, or fewer people and get done more slowly, as well as other efficiency options.
Shift based constraint: Task needs to be completed during single shift
Shift based constraint: Do not start task unless x% of time left in shift
Shift based constraint: Only start a task if it can finish during the same shift

Aurora-Viewer
Free P6 viewer for all

https://www.aurorascheduling.com/aurora-viewer/

Aurora-Viewer

Free standalone Windows application for opening and analyzing Primavera P6 .XER schedule files without requiring a Primavera license.

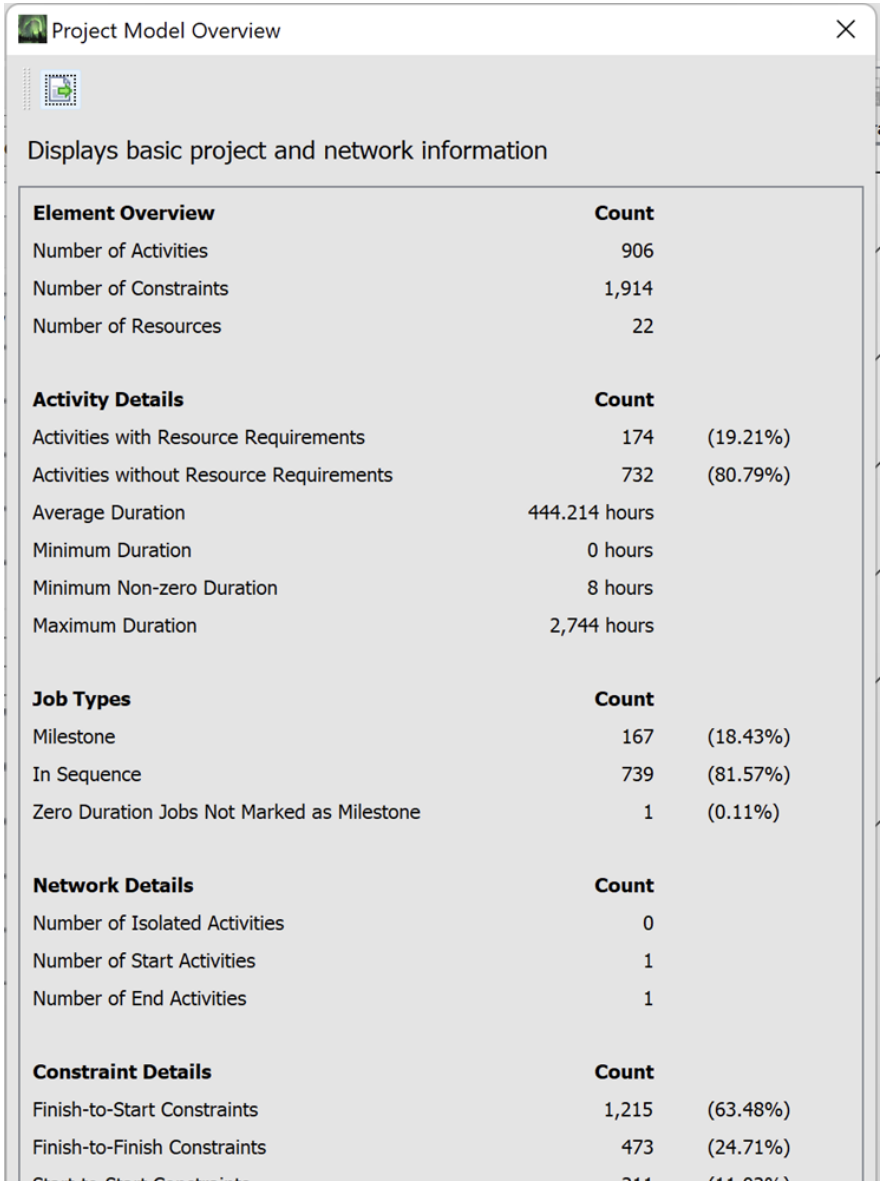
Provides fast access to schedule data, logic tracing, and schedule review for users who do not need full Primavera editing capabilities.

Evolving: welcome input / feedback

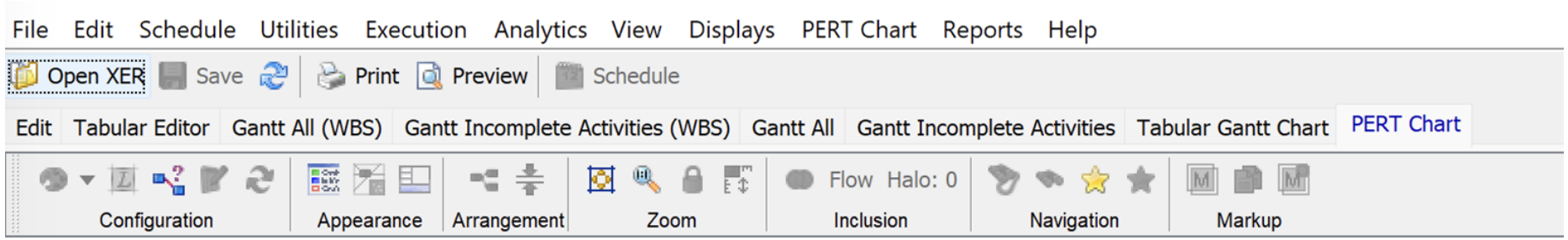
Views

- Project Overview Report
  - Includes activity details, calendars, job-type analysis, and schedule quality indicators.
- Gantt Charts
- Tabular/Spreadsheet View
- Single-Element View
- Analysis

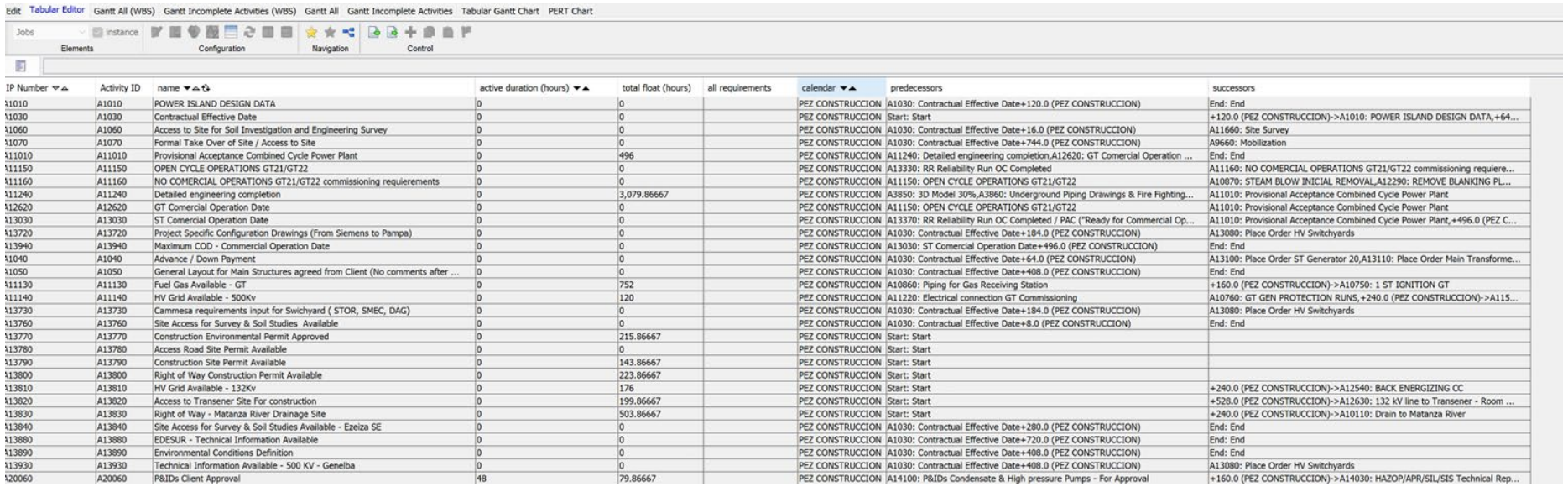
Project Model Overview



Tabbed Interface

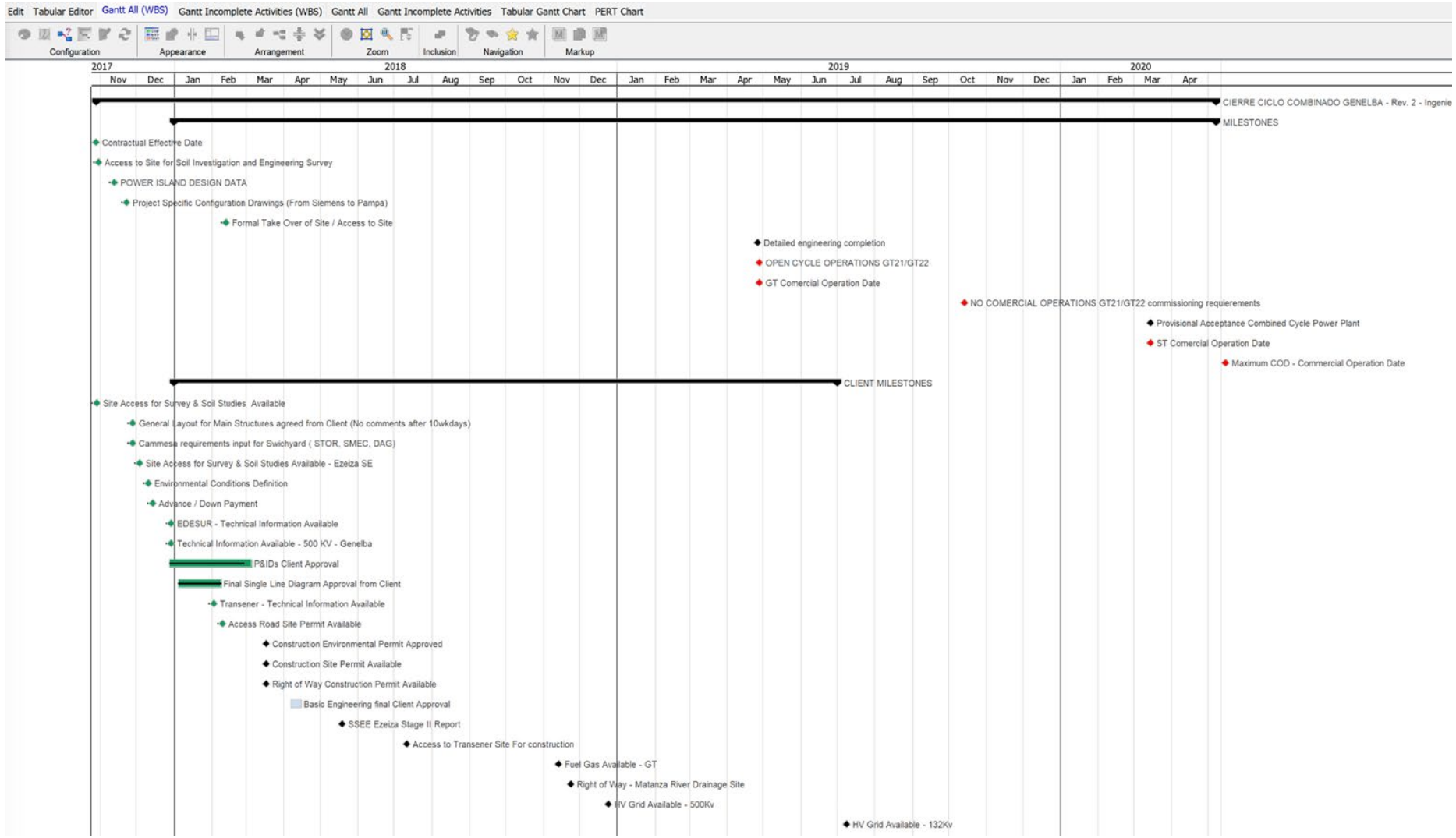


Tabular Editor

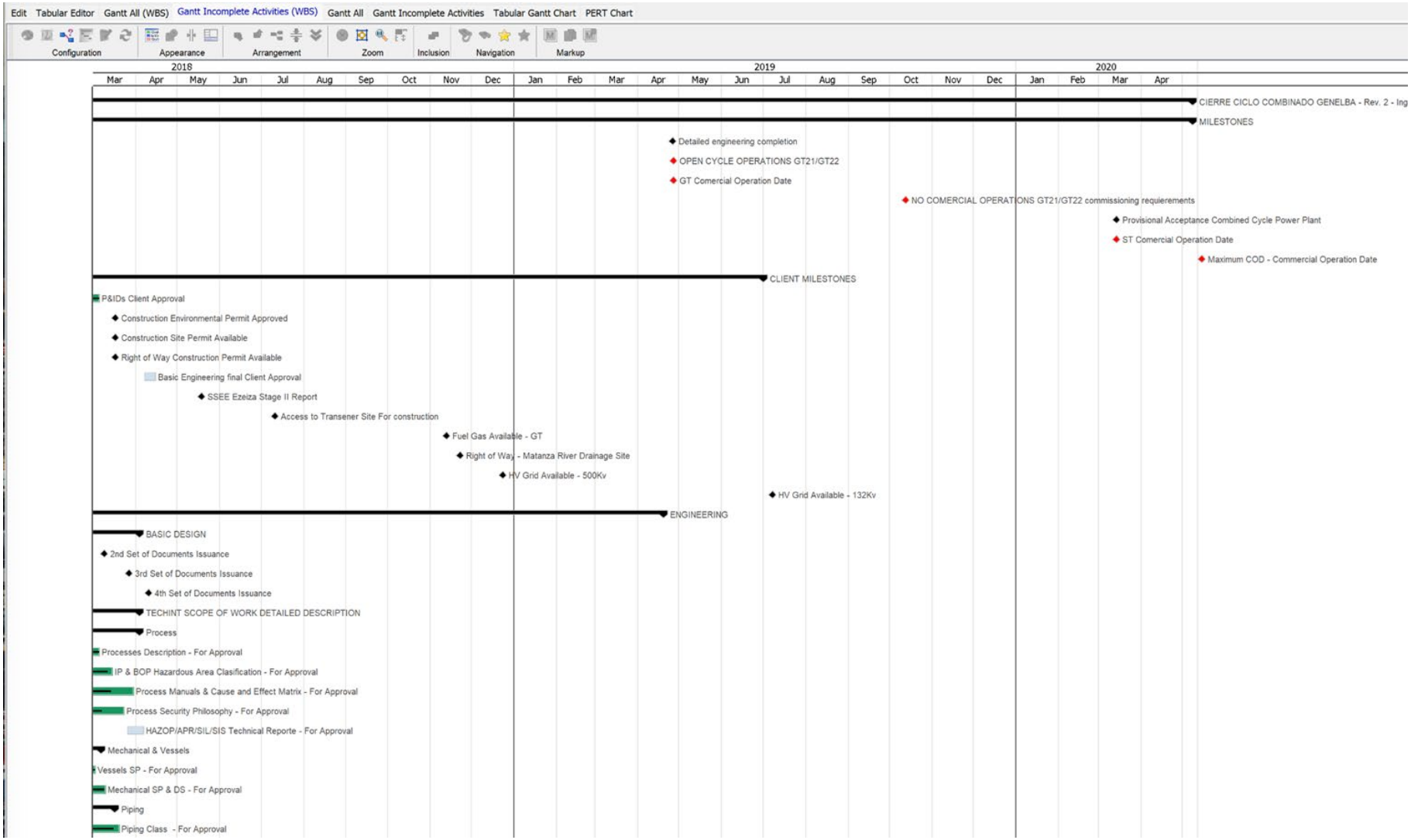


IP Number	Activity ID	name	active duration (hours)	total float (hours)	all requirements	calendar	predecessors	successors
A1010	A1010	POWER ISLAND DESIGN DATA	0	0		PEZ CONSTRUCCION	A1030: Contractual Effective Date+120.0 (PEZ CONSTRUCCION)	End: End
A1030	A1030	Contractual Effective Date	0	0		PEZ CONSTRUCCION	Start: Start	+120.0 (PEZ CONSTRUCCION)->A1010: POWER ISLAND DESIGN DATA,+64...
A1060	A1060	Access to Site for Soil Investigation and Engineering Survey	0	0		PEZ CONSTRUCCION	A1030: Contractual Effective Date+16.0 (PEZ CONSTRUCCION)	A11660: Site Survey
A1070	A1070	Formal Take Over of Site / Access to Site	0	0		PEZ CONSTRUCCION	A1030: Contractual Effective Date+744.0 (PEZ CONSTRUCCION)	A9660: Mobilization
A11010	A11010	Provisional Acceptance Combined Cycle Power Plant	0	496		PEZ CONSTRUCCION	A11240: Detailed engineering completion,A12620: GT Comercial Operation ...	End: End
A11150	A11150	OPEN CYCLE OPERATIONS GT21/GT22	0	0		PEZ CONSTRUCCION	A13330: RR Reliability Run OC Completed	A11160: NO COMERCIAL OPERATIONS GT21/GT22 commissioning requiere...
A11160	A11160	NO COMERCIAL OPERATIONS GT21/GT22 commissioning requierements	0	0		PEZ CONSTRUCCION	A11150: OPEN CYCLE OPERATIONS GT21/GT22	A10870: STEAM BLOW INICIAL REMOVAL,A12290: REMOVE BLANKING PL...
A11240	A11240	Detailed engineering completion	0	3,079.86667		PEZ CONSTRUCCION	A3850: 3D Model 30%,A3860: Underground Piping Drawings & Fire Fighting...	A11010: Provisional Acceptance Combined Cycle Power Plant
A12620	A12620	GT Comercial Operation Date	0	0		PEZ CONSTRUCCION	A11150: OPEN CYCLE OPERATIONS GT21/GT22	A11010: Provisional Acceptance Combined Cycle Power Plant
A13030	A13030	ST Comercial Operation Date	0	0		PEZ CONSTRUCCION	A13370: RR Reliability Run OC Completed / PAC ("Ready for Commercial Op...	A11010: Provisional Acceptance Combined Cycle Power Plant,+496.0 (PEZ C...
A13720	A13720	Project Specific Configuration Drawings (From Siemens to Pampa)	0	0		PEZ CONSTRUCCION	A1030: Contractual Effective Date+184.0 (PEZ CONSTRUCCION)	A13080: Place Order HV Switchyards
A13940	A13940	Maximum COD - Commercial Operation Date	0	0		PEZ CONSTRUCCION	A13030: ST Comercial Operation Date+496.0 (PEZ CONSTRUCCION)	End: End
A1040	A1040	Advance / Down Payment	0	0		PEZ CONSTRUCCION	A1030: Contractual Effective Date+64.0 (PEZ CONSTRUCCION)	A13100: Place Order ST Generator 20,A13110: Place Order Main Transforme...
A1050	A1050	General Layout for Main Structures agreed from Client (No comments after ...	0	0		PEZ CONSTRUCCION	A1030: Contractual Effective Date+408.0 (PEZ CONSTRUCCION)	End: End
A11130	A11130	Fuel Gas Available - GT	0	752		PEZ CONSTRUCCION	A10860: Piping for Gas Receiving Station	+160.0 (PEZ CONSTRUCCION)->A10750: 1 ST IGNITION GT
A11140	A11140	HV Grid Available - 500Kv	0	120		PEZ CONSTRUCCION	A11220: Electrical connection GT Commissioning	A10760: GT GEN PROTECTION RUNS,+240.0 (PEZ CONSTRUCCION)->A115...
A13730	A13730	Cammesa requirements input for Swichyard (STOR, SMEC, DAG)	0	0		PEZ CONSTRUCCION	A1030: Contractual Effective Date+184.0 (PEZ CONSTRUCCION)	A13080: Place Order HV Switchyards
A13760	A13760	Site Access for Survey & Soil Studies Available	0	0		PEZ CONSTRUCCION	A1030: Contractual Effective Date+8.0 (PEZ CONSTRUCCION)	End: End
A13770	A13770	Construction Environmental Permit Approved	0	215.86667		PEZ CONSTRUCCION	Start: Start	
A13780	A13780	Access Road Site Permit Available	0	0		PEZ CONSTRUCCION	Start: Start	
A13790	A13790	Construction Site Permit Available	0	143.86667		PEZ CONSTRUCCION	Start: Start	
A13800	A13800	Right of Way Construction Permit Available	0	223.86667		PEZ CONSTRUCCION	Start: Start	
A13810	A13810	HV Grid Available - 132Kv	0	176		PEZ CONSTRUCCION	Start: Start	+240.0 (PEZ CONSTRUCCION)->A12540: BACK ENERGIZING CC
A13820	A13820	Access to Transener Site For construction	0	199.86667		PEZ CONSTRUCCION	Start: Start	+528.0 (PEZ CONSTRUCCION)->A12630: 132 kV line to Transener - Room ...
A13830	A13830	Right of Way - Matanza River Drainage Site	0	503.86667		PEZ CONSTRUCCION	Start: Start	+240.0 (PEZ CONSTRUCCION)->A10110: Drain to Matanza River
A13840	A13840	Site Access for Survey & Soil Studies Available - Ezeiza SE	0	0		PEZ CONSTRUCCION	A1030: Contractual Effective Date+280.0 (PEZ CONSTRUCCION)	End: End
A13880	A13880	EDESUR - Technical Information Available	0	0		PEZ CONSTRUCCION	A1030: Contractual Effective Date+720.0 (PEZ CONSTRUCCION)	End: End
A13890	A13890	Environmental Conditions Definition	0	0		PEZ CONSTRUCCION	A1030: Contractual Effective Date+408.0 (PEZ CONSTRUCCION)	End: End
A13930	A13930	Technical Information Available - 500 KV - Genelba	0	0		PEZ CONSTRUCCION	A1030: Contractual Effective Date+408.0 (PEZ CONSTRUCCION)	A13080: Place Order HV Switchyards
A20060	A20060	P&IDs Client Approval	48	79.86667		PEZ CONSTRUCCION	A14100: P&IDs Condensate & High pressure Pumps - For Approval	+160.0 (PEZ CONSTRUCCION)->A14030: HAZOP/APR/SIL/SIS Technical Rep...

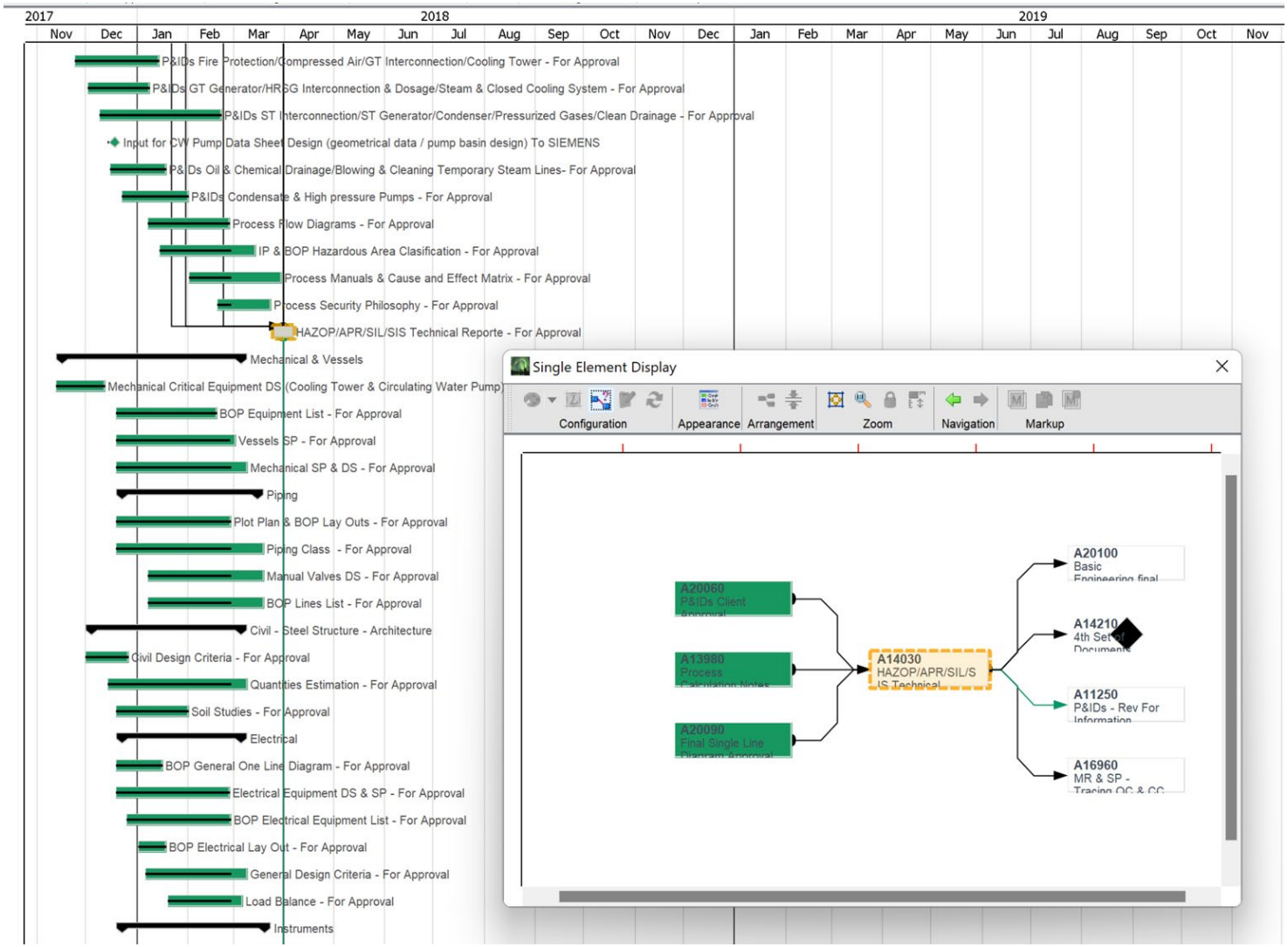
Gantt All (WBS)



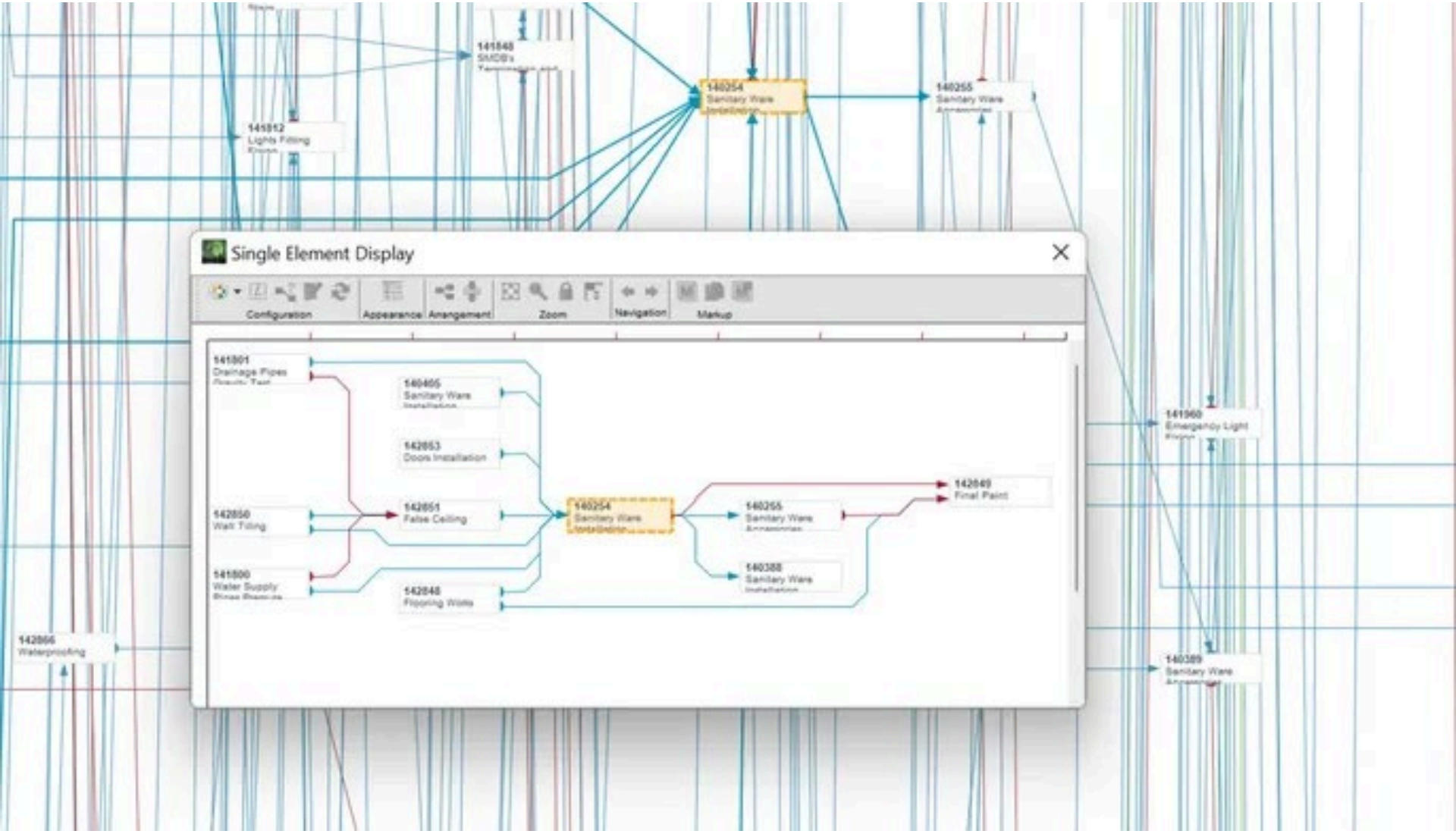
Gantt Incomplete Activities (WBS)



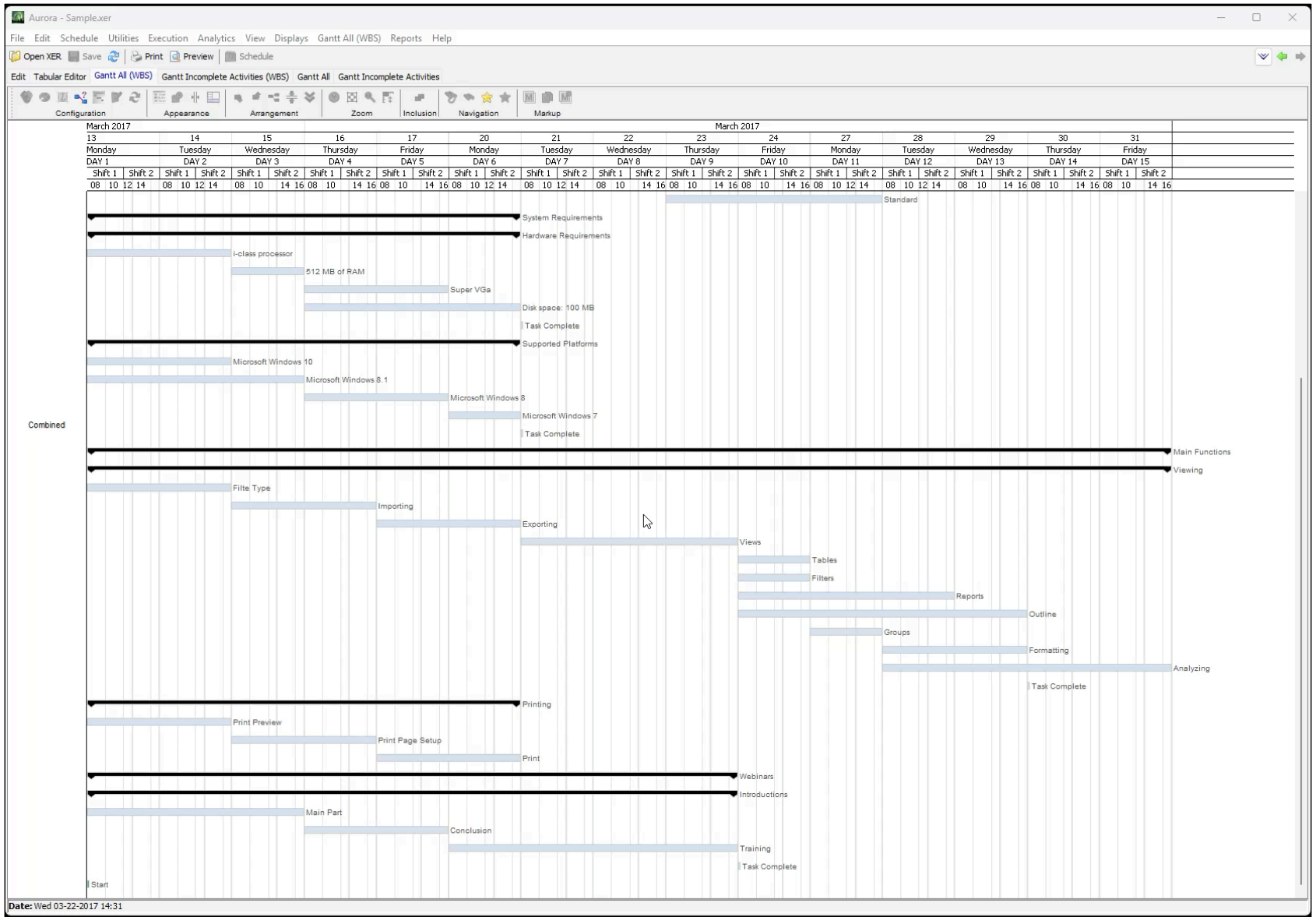
Single Element View



Single Element View



Single Element Display Video

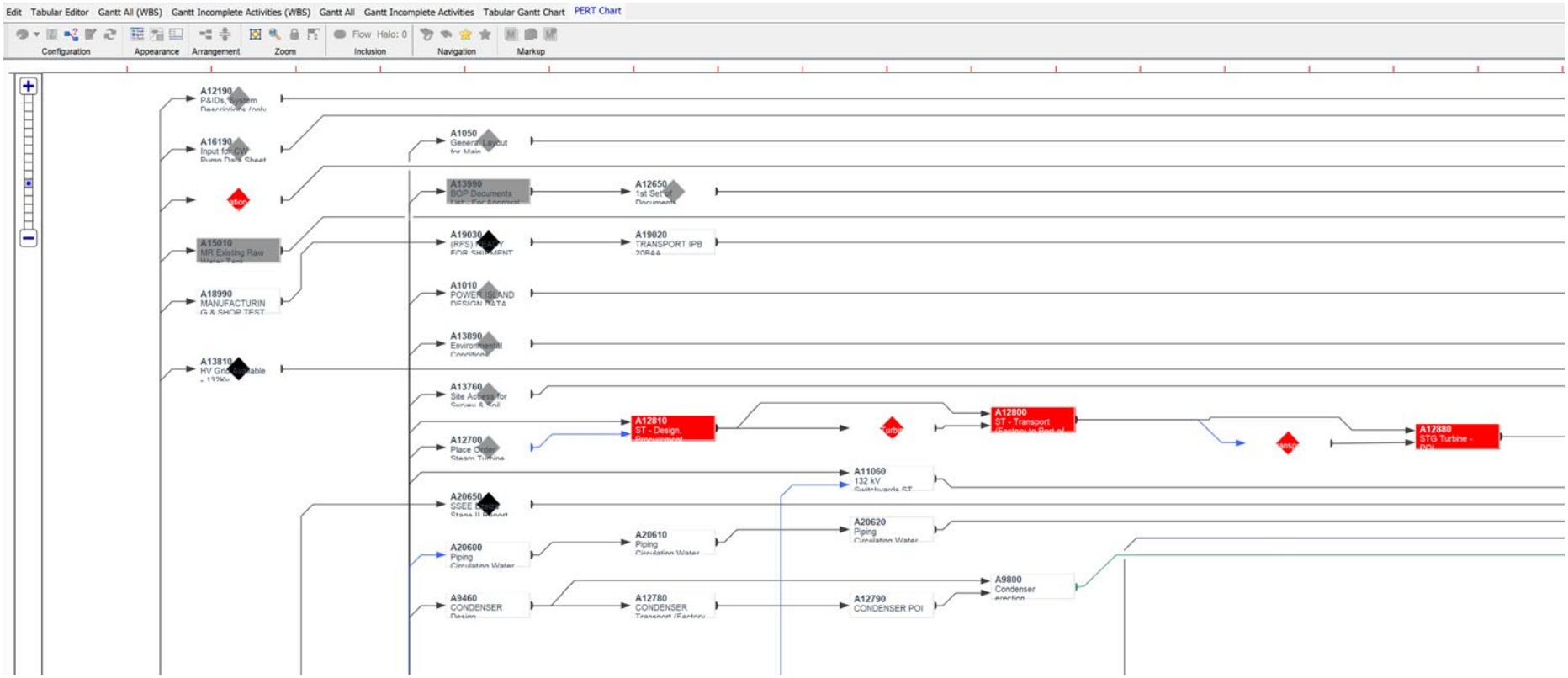


Tabular Gantt

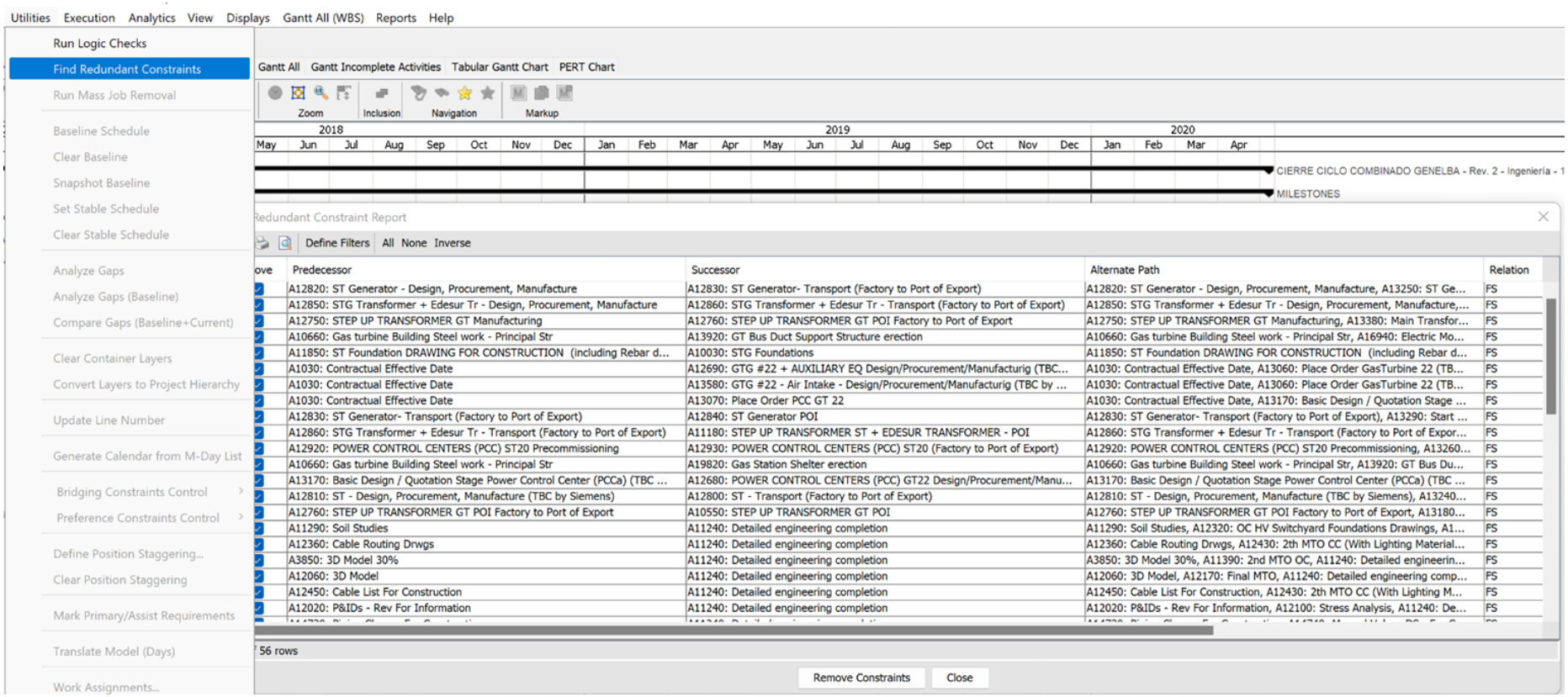
Edit | Tabular Editor | Gantt All (WBS) | Gantt Incomplete Activities (WBS) | Gantt All | Gantt Incomplete Activities | Tabular Gantt Chart | PERT Chart

IP Number	Activity ID	name	active duration (ho...	start date	end date	total float (hour
A15730	A15730	Well Pumps - Purchasing	248	01/23/18 00:00	03/30/18 16:00	511.86667
A17280	A17280	SP Water Well - For Quotation	24	01/23/18 08:00	01/26/18 00:00	0
A12490	A12490	ST Preliminar General Arrangement Drawings for Basic Design Plan Lay Out	0	01/24/18 00:00	01/24/18 00:00	0
A18880	A18880	Place Order Auxiliary Transformer	0	01/25/18 00:00	01/25/18 00:00	0
A15970	A15970	Tanks - Purchansing	296	01/25/18 00:00	04/05/18 16:00	1,287.86667
A4540	A4540	STG Building Drawings (By Subcontractor)	472	01/25/18 00:00	04/27/18 16:00	247.86667
A19070	A19070	PO Mgmt - 500 KV Kiosk	640	01/25/18 00:00	05/18/18 16:00	200
A12650	A12650	1st Set of Documents Issuance	0	01/25/18 16:00	01/25/18 16:00	0
A18860	A18860	Auxiliary Transformer Manufacturing	1,160	01/26/18 00:00	07/22/18 16:00	368
A20240	A20240	Transener - Technical Information Available	0	01/30/18 00:00	01/30/18 00:00	0
A11670	A11670	Soil Studies Report	0	01/31/18 00:00	01/31/18 00:00	0
A14170	A14170	Process Manuals & Cause and Effect Matrix - For Approval	248	02/02/18 00:00	03/30/18 16:00	6,183.86667
A9630	A9630	Lifting Devices Purchasing	560	02/02/18 00:00	05/08/18 16:00	263.86667
A11560	A11560	One Line Diagrams	888	02/02/18 00:00	06/18/18 16:00	303.86667
A13780	A13780	Access Road Site Permit Available	0	02/06/18 00:00	02/06/18 00:00	0
A16830	A16830	Vendor Engineering Review	2,400	02/06/18 00:00	12/24/18 16:00	4,031.86667
A13950	A13950	HV 500 Kv Kiosk Information for Design	0	02/07/18 00:00	02/07/18 00:00	0
A11800	A11800	MR, DS & SP Other Lifting Devices - For Quotation	168	02/07/18 00:00	02/28/18 00:00	0
A13350	A13350	MR, DS & SP Cooling tower chemical injection Package - For Quotation	168	02/07/18 00:00	02/28/18 00:00	0
A13230	A13230	MR, DS & SP Auxiliary Boiler - For Quotation	16	02/08/18 00:00	03/01/18 16:00	1,087.86667
A1070	A1070	Formal Take Over of Site / Access to Site	0	02/09/18 00:00	02/09/18 00:00	0
A14020	A14020	MR, DS & SP Condenser Cleaning System - For Quotation	24	02/09/18 00:00	03/02/18 16:00	1,039.86667
A9510	A9510	GTG Building Foundations Drawings	288	02/14/18 00:00	04/04/18 16:00	399.86667
A14180	A14180	Process Security Philosophy - For Approval	192	02/19/18 00:00	03/23/18 16:00	6,143.86667
A11370	A11370	3D Model	1,368	02/19/18 00:00	08/17/18 16:00	95.86667
A11270	A11270	Earth works Drwgs	216	02/19/18 08:00	03/26/18 16:00	207.86667
A16170	A16170	Vendor Engineering Review	2,720	02/21/18 00:00	02/02/19 16:00	3,711.86667
A12190	A12190	P&IDs, System Descriptions (only for DCS controlled systems) - Draft	0	02/22/18 16:00	02/22/18 16:00	0
A11870	A11870	GT Foundation DRAWING FOR CONSTRUCTION (including Rebar details)	0	02/28/18 00:00	02/28/18 00:00	0
A20460	A20460	Confirmation Direct / Piling Foundation for GTG & differential settlements	0	02/28/18 08:00	02/28/18 08:00	-32
A20330	A20330	GT Building Information (Loads) - Din to Techint	0	02/28/18 08:00	02/28/18 08:00	-48
A19260	A19260	GTG Foundations Drawings (final arrengements by TEIC)	112	02/28/18 08:00	03/13/18 16:00	479.86667
A9680	A9680	SR - Water Well Execution - For Quotation	112	02/28/18 08:00	03/13/18 16:00	439.86667
A20430	A20430	GTG Building Piling Drawings	120	02/28/18 08:00	03/14/18 16:00	191.86667
A10120	A10120	MTO - GT Metal Embedding & Anchor Bolts - For Quotation	168	02/28/18 08:00	03/20/18 16:00	360
A20400	A20400	Piling Works - Subcontracting	240	02/28/18 08:00	03/29/18 16:00	199.86667
A13540	A13540	PO Mgmt - Architectural Subcontract (Lab, Office & WSh Bld)	640	02/28/18 08:00	05/18/18 16:00	159.86667
A9660	A9660	Mobilization	672	02/28/18 08:00	05/22/18 16:00	231.86667
A19040	A19040	MANUFACTURING & SHOP TEST INCL. FINAL SHIPPING DATA & CLARIFIC...	1,400	02/28/18 08:00	08/21/18 16:00	-56
A9520	A9520	Cooling Tower - Fab & 1st Delivery at Site	1,688	02/28/18 08:00	09/26/18 16:00	175.86667
A20340	A20340	ST Building Information for Loads Calculation - Siemens / Techint to Din	0	02/28/18 16:00	02/28/18 16:00	0
A20380	A20380	GT Metal Embedding & Anchor Bolts Information - Siemens to Techint	0	02/28/18 16:00	02/28/18 16:00	0
A15750	A15750	Cooling tower chemical injection Package - Purchasing	352	03/01/18 00:00	06/17/18 16:00	1,207.86667
A15560	A15560	MR, DS & SP - FE-FO - Orifice Plates / Restraining Holes - For Quotation	120	03/01/18 08:00	03/15/18 16:00	1,400
A15650	A15650	MR, DS & SP - CV - General Service Control Valves - For Quotation	120	03/01/18 08:00	03/15/18 16:00	920
A15770	A15770	MR, DS & SP - ZV - General Service Pneumatic Block Valves - For Quotation	120	03/01/18 08:00	03/15/18 16:00	920
A12500	A12500	Underground Cable Routing	480	03/01/18 08:00	04/29/18 16:00	360
A15040	A15040	Underground Cable Routing	480	03/01/18 08:00	04/29/18 16:00	360
A15740	A15740	Auxiliary Boiler - Purchasing	864	03/02/18 08:00	06/17/18 16:00	1,087.86667

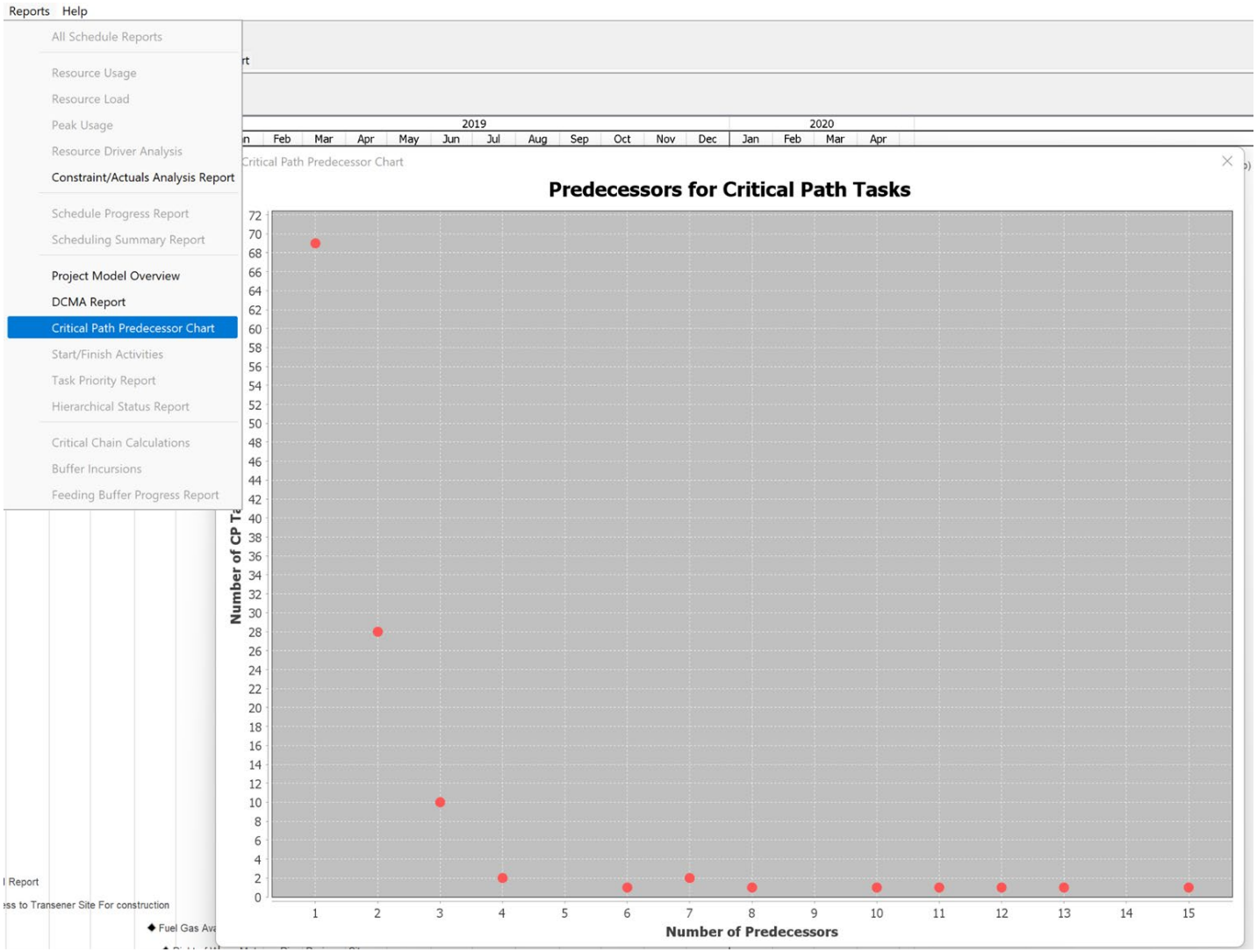
Network PERT Diagram



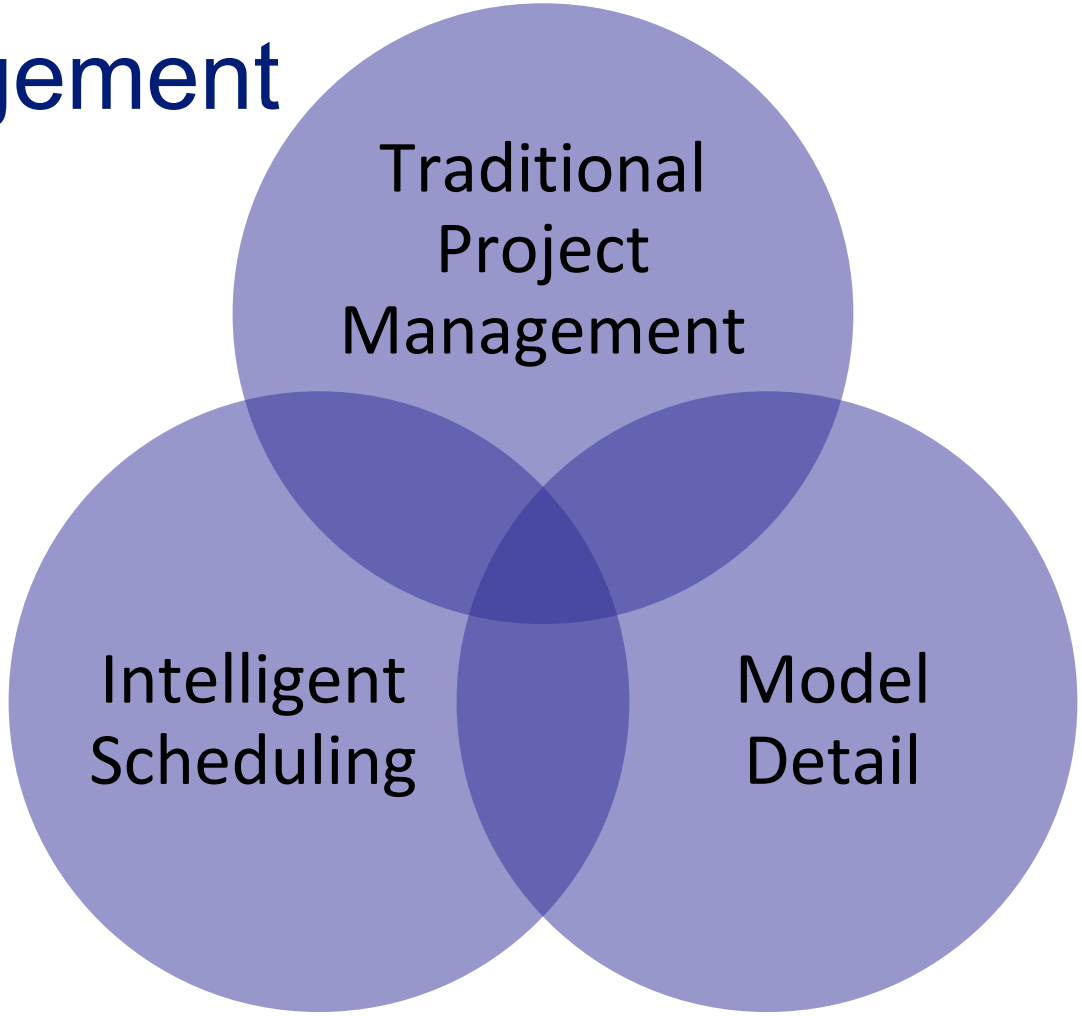
Utilities
(E.g., Find Redundant Constraints)



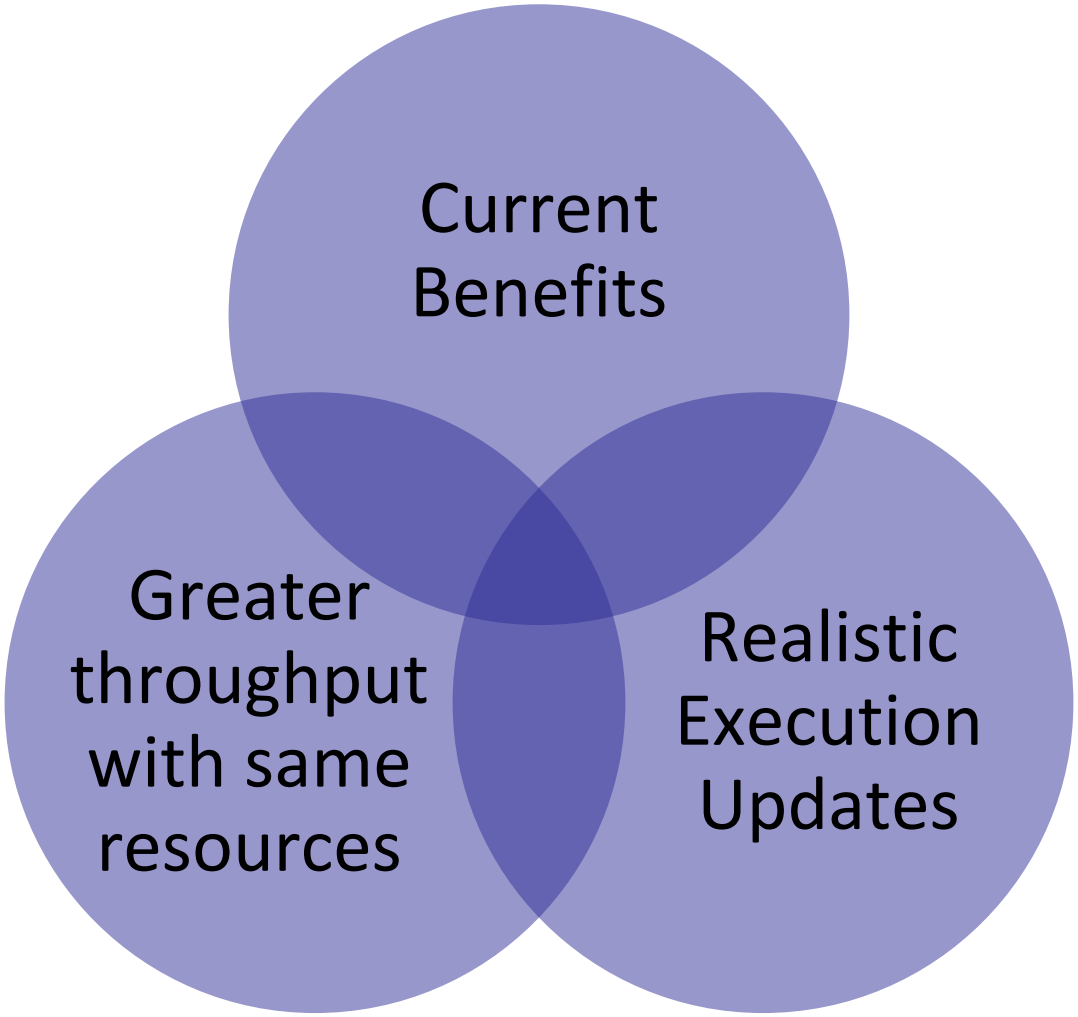
Reports
E.g., Predecessors for CP Tasks



Aurora-Gov: Enhancements to Traditional Project Management



Benefits of Aurora-Gov



Aurora Customers (1)

Boeing

Boeing uses Aurora to prioritize production of the Boeing 787 Dreamliner™. Aurora's dynamic assembly schedule adapts to real-time production [...]

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Axiom Space

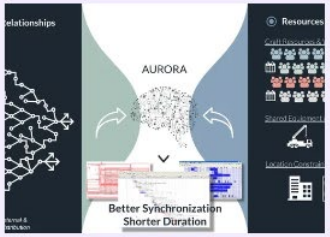
Axiom Space, a leading provider of human spaceflight services and developer of human-rated space infrastructure, has selected Stottler Henke's [...]

Learn More

General Dynamics Electric Boat

Aurora is being leveraged by General Dynamics Electric Boat (GDEB) for the scheduling of various aspects of submarine construction. [...]

Learn More



Bechtel

Aurora was chosen by Bechtel to help schedule the destruction of the U.S. Chemical Weapons stockpile at the Blue [...]

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Air Force Maintenance Scheduling

The Aurora intelligent scheduling framework is leveraged by the US Air Force Global Strike Command (AFGSC) to improve the [...]

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Kennedy Space Center

Stottler Henke has worked with and continues to work with NASA's Kennedy Space Center (KSC) to improve KSC's Ground [...]

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Stottler Henke
Smarter Software Solutions

Aurora Customers (2)

Space Force Satellite Scheduling

The Aurora intelligent scheduling framework has been applied to Satellite Control Network (SCN) scheduling to create an automatic scheduling [...]

Los Alamos National Laboratory

Los Alamos National Laboratory (LANL), a national laboratory for the United States Department of Energy, has selected Stottler Henke's [...]

Bombardier Learjet

Aurora helps Bombardier schedule their airplane assembly operations more quickly, so they can handle production rate changes and component [...]

Navy MRO Scheduling

The US Navy selected Aurora-CCPM™ software to schedule submarine maintenance operations at the Naval Submarine Support Facility (NSSF) in [...]

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Camcar Textron

Camcar manufactures bolts for aerospace domains. Throughput and quality assurance are both critical in such a domain.

Learn More

Spirit AeroSystems

Spirit AeroSystems, Inc., the world's largest first-tier aerostructures manufacturer, leverages Aurora to schedule equipment, labor, and timing for large [...]

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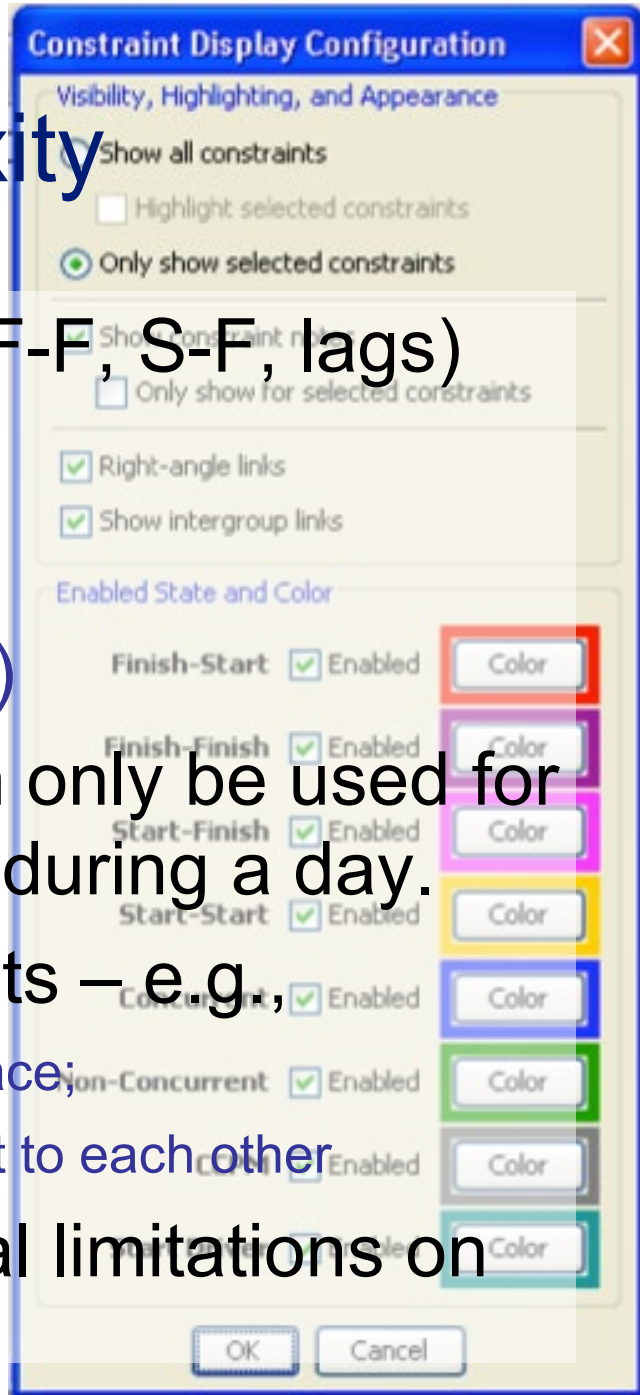
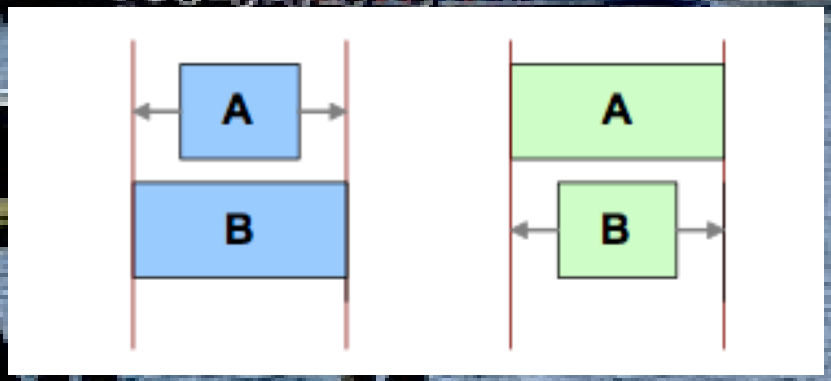
Constraints Add Complexity

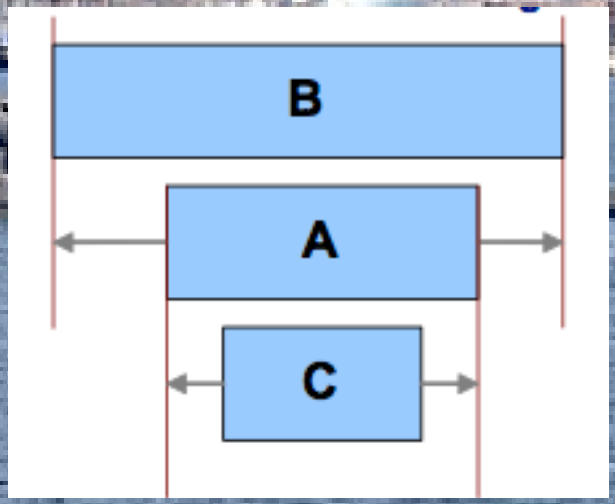
- Technical constraints (E.g., F-S, F-F, S-F, lags)
- Resource constraints
  - Labor constraints
  - Equipment, Tools (e.g., cranes)
- Usage constraints – e.g., tool can only be used for so many hours continuously &/or during a day.
- Spatial / physical space constraints – e.g.,
  - job requires a certain location or type of space;
  - two elements should (or should not) be next to each other
- Ergonomic constraints – individual limitations on work conditions



Concurrent & Non-Concurrent

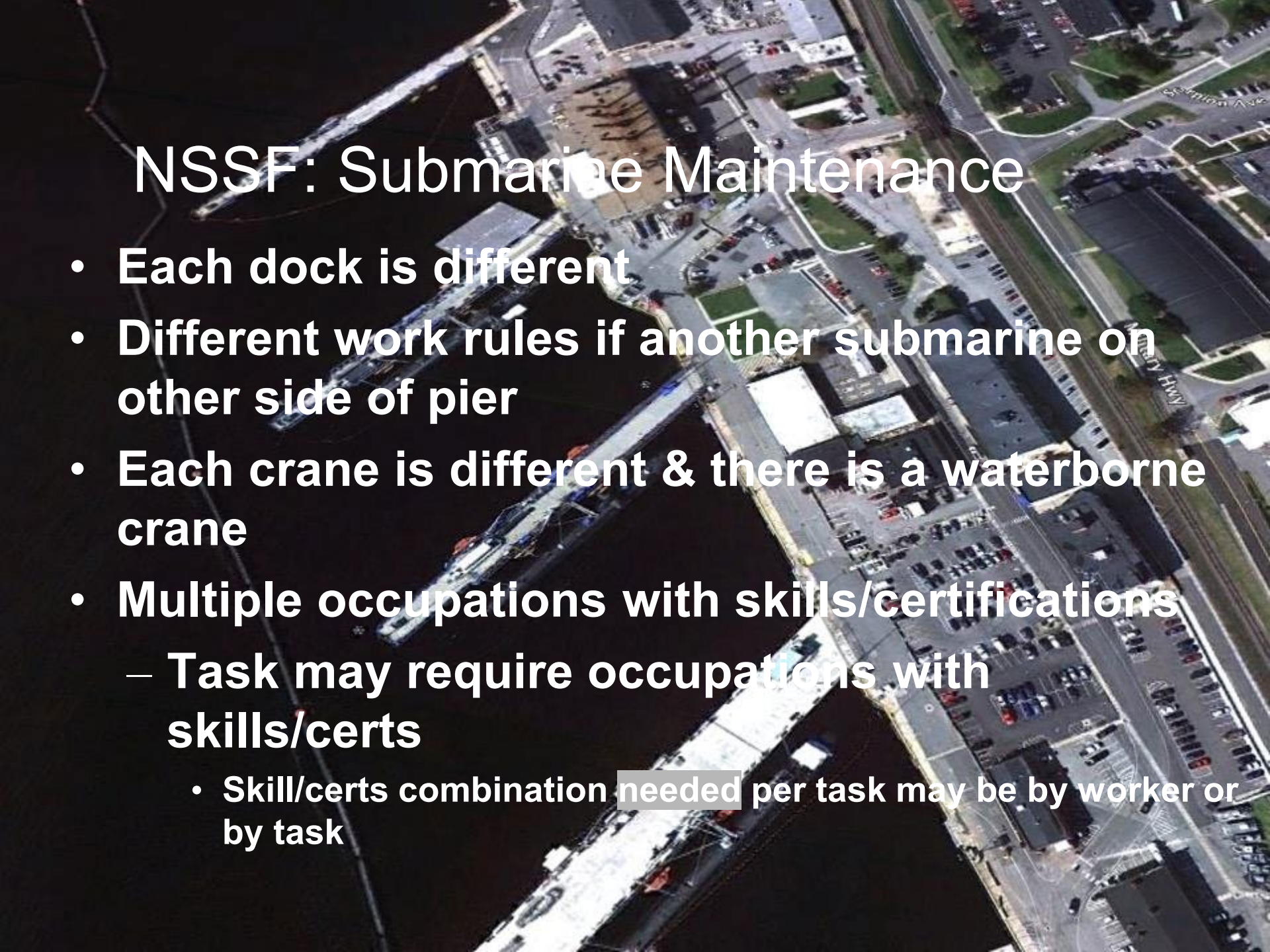
- Complex operations requires concept of concurrent & non-concurrent tasks
- Adds another layer of complexity





More Complexity: Shipbuilding & Ship Maintenance

- Ingress & egress: limited
- Skills / Certifications in addition to Occupations
  - E.g., Mechanic (occupation) with 4 additional skills or certifications
- Constraints based on status/state
  - E.g., no hot work when other conditions in effect
- Shift based constraints
  - Task needs to be completed during single shift
  - Do not start task unless x% of time left in shift

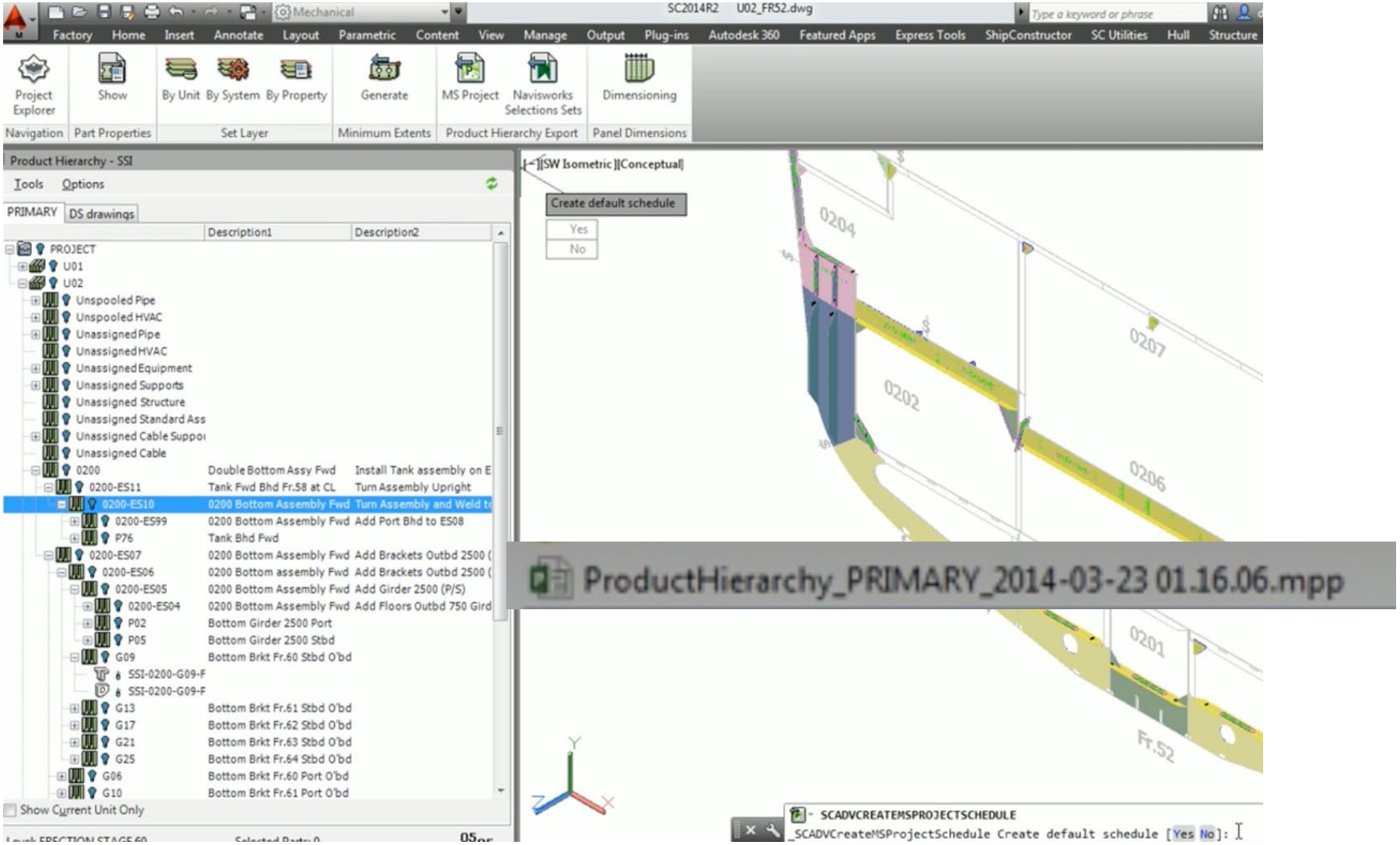


NSSF: Submarine Maintenance

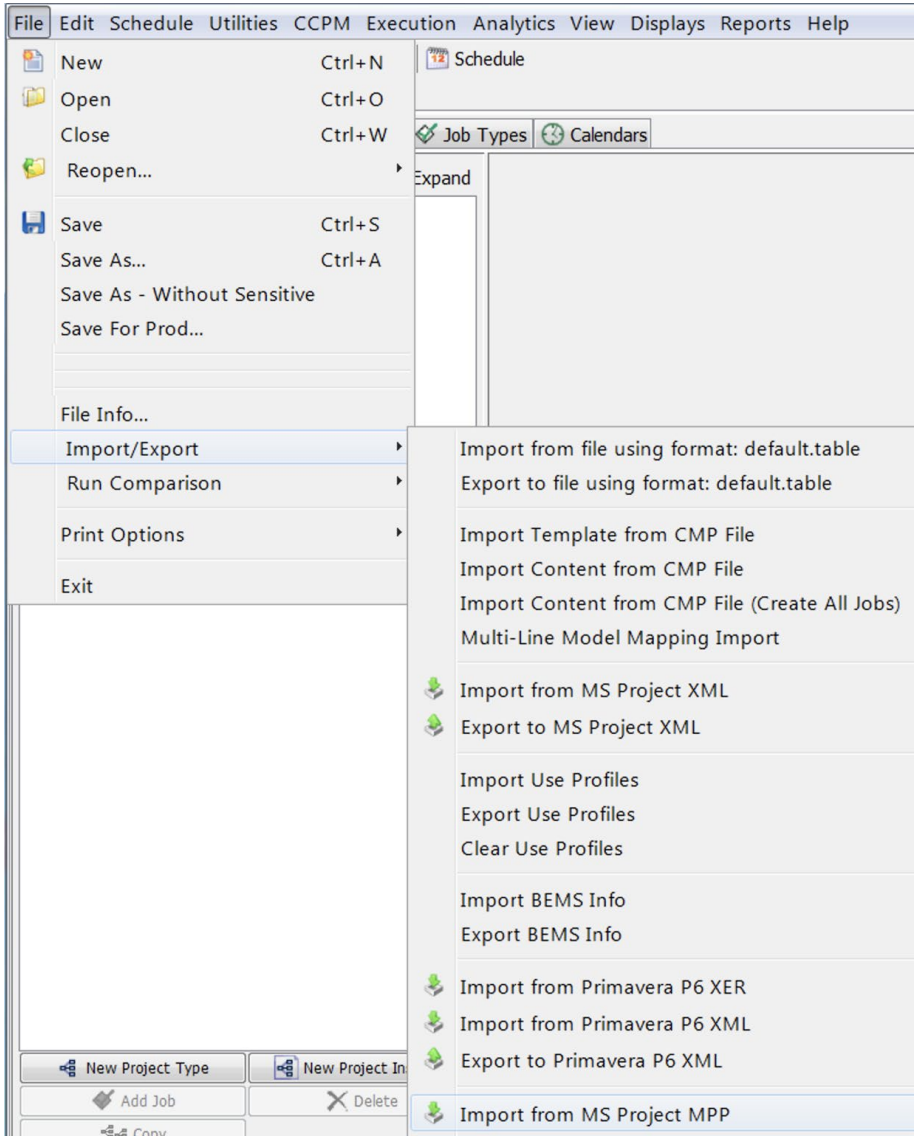
- **Each dock is different**
- **Different work rules if another submarine on other side of pier**
- **Each crane is different & there is a waterborne crane**
- **Multiple occupations with skills/certifications**
  - **Task may require occupations with skills/certs**
    - **Skill/certs combination needed per task may be by worker or by task**

SSI's ShipConstructor to Aurora

Export to MS Project

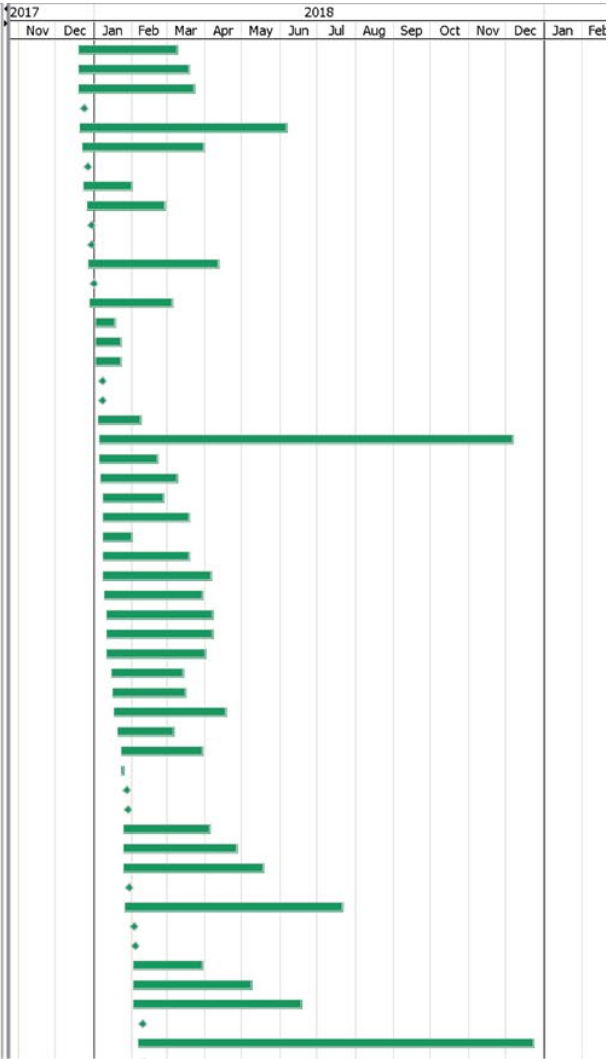


Import into Aurora



Work with in Aurora

IP Number	Activity ID	name	active duration (ho...	start date	end date	total float (hour
A14240	A14240	Mechanical SP & DS - For Approval	80	12/19/17 08:00	03/09/18 16:00	6,351.86667
A14310	A14310	Piping Class - For Approval	160	12/19/17 08:00	03/19/18 16:00	320
A14290	A14290	Instruments DS & SP - For Approval	192	12/19/17 08:00	03/23/18 16:00	480
A13070	A13070	Place Order PCC GT 22	0	12/20/17 08:00	12/20/17 08:00	0
A12680	A12680	POWER CONTROL CENTERS (PCC) GT22 Design/Procurement/Manufacturig	792	12/20/17 08:00	06/06/18 16:00	208
A18810	A18810	PO Mgmt - Massive Earth Movement	256	12/22/17 00:00	03/31/18 16:00	111.86667
A13090	A13090	Place General Order HRSG	0	12/23/17 00:00	12/23/17 00:00	0
A14100	A14100	P&IDs Condensate & High pressure Pumps - For Approval	328	12/23/17 08:00	02/02/18 00:00	0
A14360	A14360	BOP Electrical Equipment List - For Approval	512	12/26/17 00:00	02/28/18 00:00	0
A13880	A13880	EDESUR - Technical Information Available	0	12/26/17 08:00	12/26/17 08:00	0
A13930	A13930	Technical Information Available - 500 KV - Genelba	0	12/26/17 08:00	12/26/17 08:00	0
A11320	A11320	GTG Building Drawings (By Subcontractor)	352	12/27/17 08:00	04/12/18 16:00	312
A13690	A13690	GT Air Intake Filter for Building Design	0	12/27/17 16:00	12/27/17 16:00	0
A20060	A20060	P&IDs Client Approval	48	12/28/17 00:00	03/05/18 16:00	79.86667
A14350	A14350	BOP Electrical Lay Out - For Approval	136	01/02/18 00:00	01/19/18 00:00	0
A13970	A13970	SR - 500 KV Kiosk	176	01/02/18 00:00	01/24/18 00:00	0
A19120	A19120	SR - Architectural Subcontract (Lab, Office & WSh Bld)	176	01/02/18 00:00	01/24/18 00:00	0
A20080	A20080	Resubmition of General Single Line Diagram	0	01/03/18 16:00	01/03/18 16:00	0
A13110	A13110	Place Order Main Transformer ST 20 + Edesur Tr	0	01/04/18 00:00	01/04/18 00:00	0
A20090	A20090	Final Single Line Diagram Approval from Client	288	01/04/18 08:00	02/09/18 00:00	0
A12850	A12850	STG Transformer + Edesur Tr - Design, Procurement, Manufacture	2,264	01/05/18 00:00	12/07/18 16:00	311.86667
A9960	A9960	Control System Architecture - For Approval SIEMENS	384	01/05/18 08:00	02/22/18 00:00	0
A14400	A14400	General Design Criteria - For Approval	80	01/06/18 00:00	03/09/18 16:00	6,255.86667
A14010	A14010	Process Flow Diagrams - For Approval	400	01/08/18 00:00	02/27/18 00:00	0
A14300	A14300	Manual Valves DS - For Approval	160	01/08/18 00:00	03/19/18 16:00	320
A11760	A11760	MR, DS & SP Lifting Devices - For Quotation	200	01/08/18 08:00	02/02/18 00:00	0
A14320	A14320	BOP Lines List - For Approval	160	01/08/18 08:00	03/19/18 16:00	6,271.86667
A11770	A11770	MR, DS & SP Water Treatment Plant - For Purchase	304	01/08/18 08:00	04/06/18 16:00	239.86667
A9470	A9470	Circulating Water Pump Purchasing	248	01/09/18 00:00	03/30/18 16:00	351.86667
A13700	A13700	Gas Heater Purchasing	312	01/11/18 00:00	04/07/18 16:00	464
A14510	A14510	Gas Filter Purchasing	312	01/11/18 00:00	04/07/18 16:00	464
A16530	A16530	GT Overhead Crane Purchasing	264	01/11/18 08:00	04/01/18 16:00	24
A14050	A14050	IP & BOP Hazardous Area Clasification - For Approval	120	01/15/18 00:00	03/14/18 16:00	1,071.86667
A12420	A12420	Engineering Review - HV Cable Design	136	01/16/18 08:00	03/16/18 16:00	1,263.86667
A9550	A9550	FG Metering Skid Purchasing	400	01/17/18 00:00	04/18/18 16:00	584
A14390	A14390	Load Balance - For Approval	56	01/20/18 08:00	03/06/18 16:00	6,375.86667
A15730	A15730	Well Pumps - Purchasing	248	01/23/18 00:00	03/30/18 16:00	511.86667
A17280	A17280	SP Water Well - For Quotation	24	01/23/18 08:00	01/26/18 00:00	0
A12490	A12490	ST Preliminar General Arrangement Drawings for Basic Design Plan Lay Out	0	01/24/18 00:00	01/24/18 00:00	0
A18880	A18880	Place Order Auxiliary Transformer	0	01/25/18 00:00	01/25/18 00:00	0
A15970	A15970	Tanks - Purchansing	296	01/25/18 00:00	04/05/18 16:00	1,287.86667
A4540	A4540	STG Building Drawings (By Subcontractor)	472	01/25/18 00:00	04/27/18 16:00	247.86667
A19070	A19070	PO Mgmt - 500 KV Kiosk	640	01/25/18 00:00	05/18/18 16:00	200
A12650	A12650	1st Set of Documents Issuance	0	01/25/18 16:00	01/25/18 16:00	0
A18860	A18860	Auxiliary Transformer Manufacturing	1,160	01/26/18 00:00	07/22/18 16:00	368
A20240	A20240	Transener - Technical Information Available	0	01/30/18 00:00	01/30/18 00:00	0
A11670	A11670	Soil Studies Report	0	01/31/18 00:00	01/31/18 00:00	0
A14170	A14170	Process Manuals & Cause and Effect Matrix - For Approval	248	02/02/18 00:00	03/30/18 16:00	6,183.86667
A9630	A9630	Lifting Devices Purchasing	560	02/02/18 00:00	05/08/18 16:00	263.86667
A11560	A11560	One Line Diagrams	888	02/02/18 00:00	06/18/18 16:00	303.86667
A13780	A13780	Access Road Site Permit Available	0	02/06/18 00:00	02/06/18 00:00	0
A16830	A16830	Vendor Engineering Review	2,400	02/06/18 00:00	12/24/18 16:00	4,031.86667



Aurora is the Scheduling Engine in Siemens Xcelerator IPP&E

Siemens Integrated Program Planning & Execution (IPP&E) with Aurora Intelligent Scheduling

Siemens IPP&E solution provides a systems approach to program planning and execution by integrating cost, schedule and technical requirements in a fully planned, resourced and budgeted program management system. IPP&E's scheduling is provided by Stottler Henke's Aurora Intelligent Scheduling, as are many of the project management graphic reports, including network diagrams, Gantt Charts, and histograms. The solution is easy to maintain and scalable to commercial and government programs of any size. Improve your ability to execute on cost and schedule by using an integrated system that manages all program artifacts.

Learn More

Program planning and execution excellence are essential to business success in today's commercial and government environments. All providers need to become more efficient and reduce direct and indirect expenses, IPP&E drives continuous improvement and transparency for programs.

IPP&E enables program planning and execution based on a common WBS structure. It allows the creation of estimates based on past performance, and integrates cost, schedule, requirements, processes, inputs, and outputs for a complete work package definition. It is a single source for all program estimating and execution information, including risk and opportunity management. It supports Integrated Master Plan, Integrated Master Schedule and Earned Value Management. During execution, the intelligence of Aurora determines the best path forward, based on the latest status. This solution enables you to successfully deliver programs in the current environment, ultimately improving profits, reputation and the ability to invest in and win new programs. Read More.

Solution Capabilities

Aurora-Gov: Gratis full PM tool for government employees
&
Aurora-Viewer free P6 viewer for all

richards@stottlerhenke.com

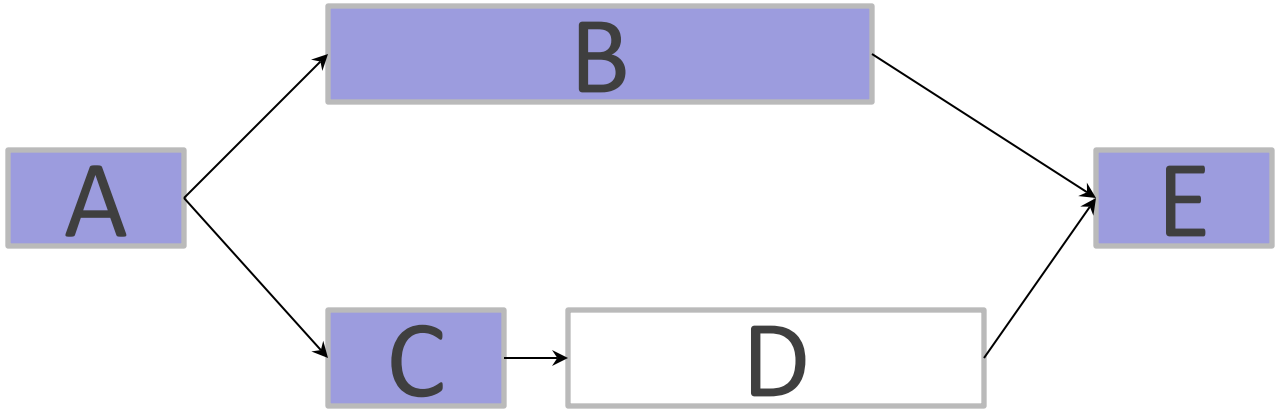
National Shipbuilding Research Program (NSRP)
Business Technologies (BT) Joint Panel Meeting
Baltimore Maryland
June 23 - 25, 2026

Stottler Henke

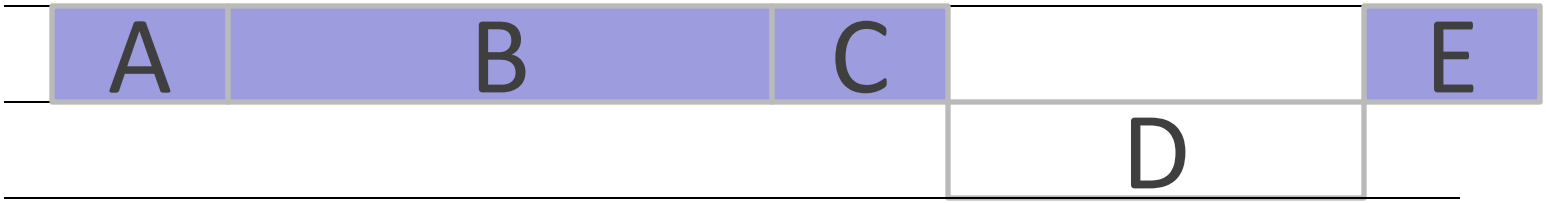
EXTRA SLIDES

Why order matters?

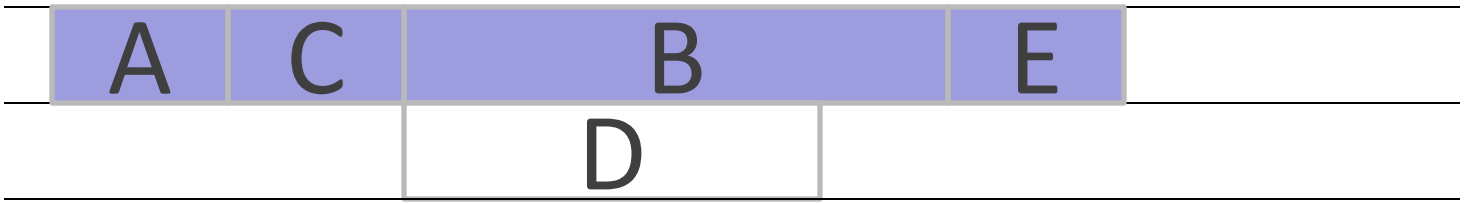
The example below involves jobs using two resources, purple and white



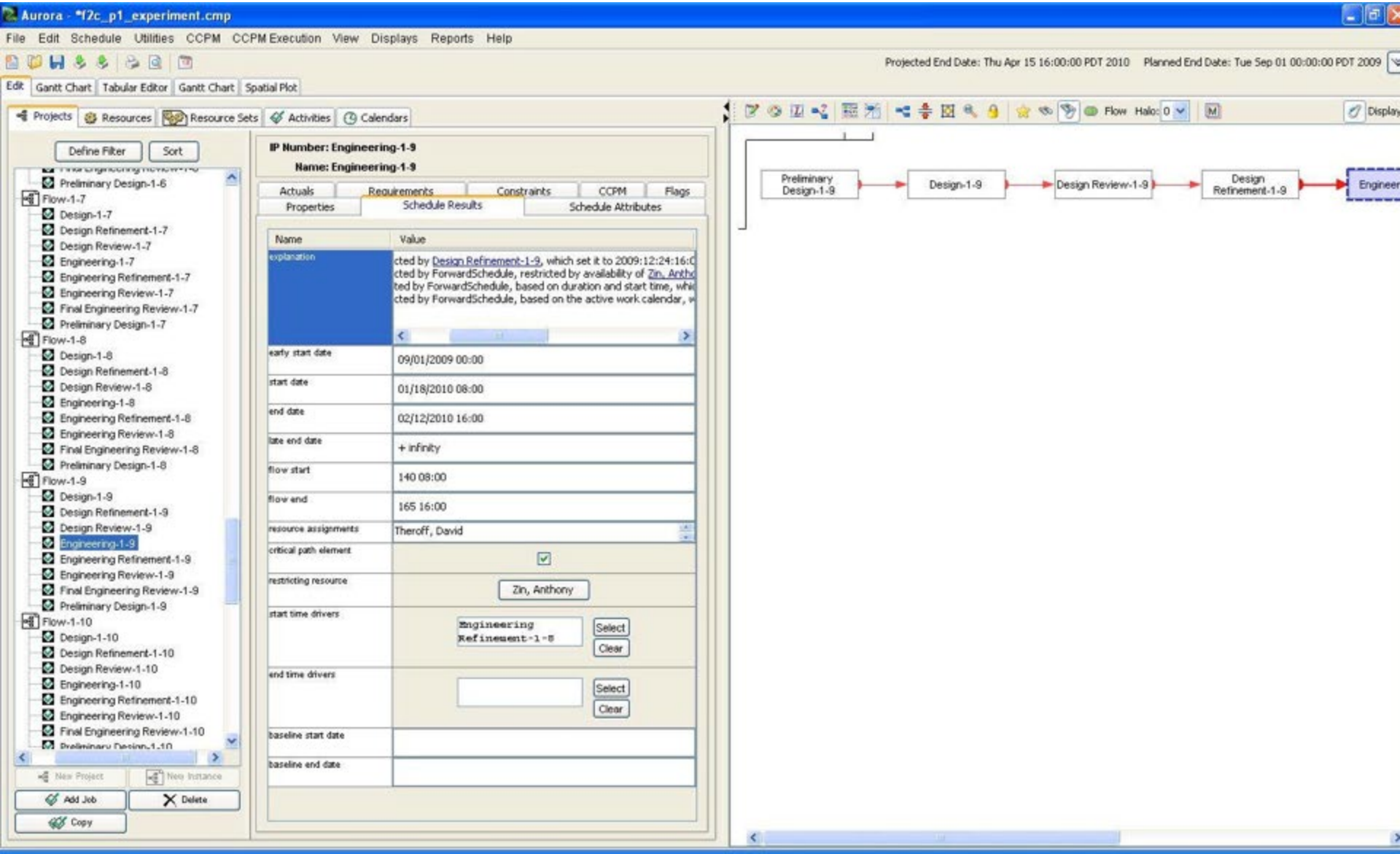
Schedule 1: B before C



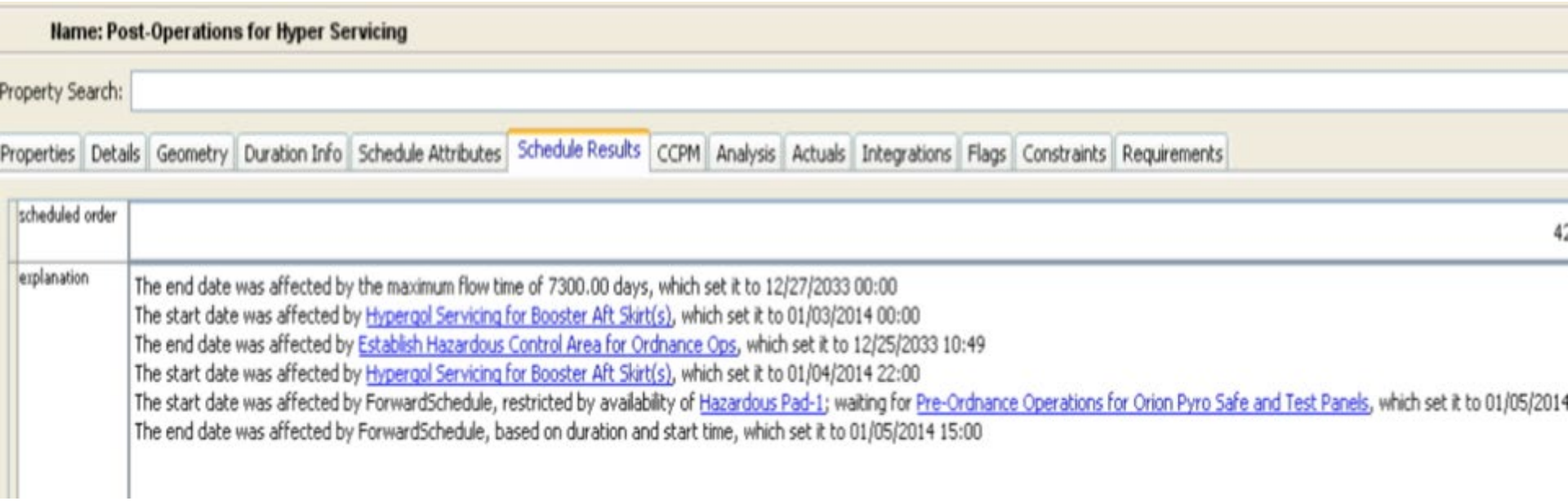
Schedule 1: C before B



Explanation of Why each Task was Scheduled Where it was



Schedule Results: Explanation



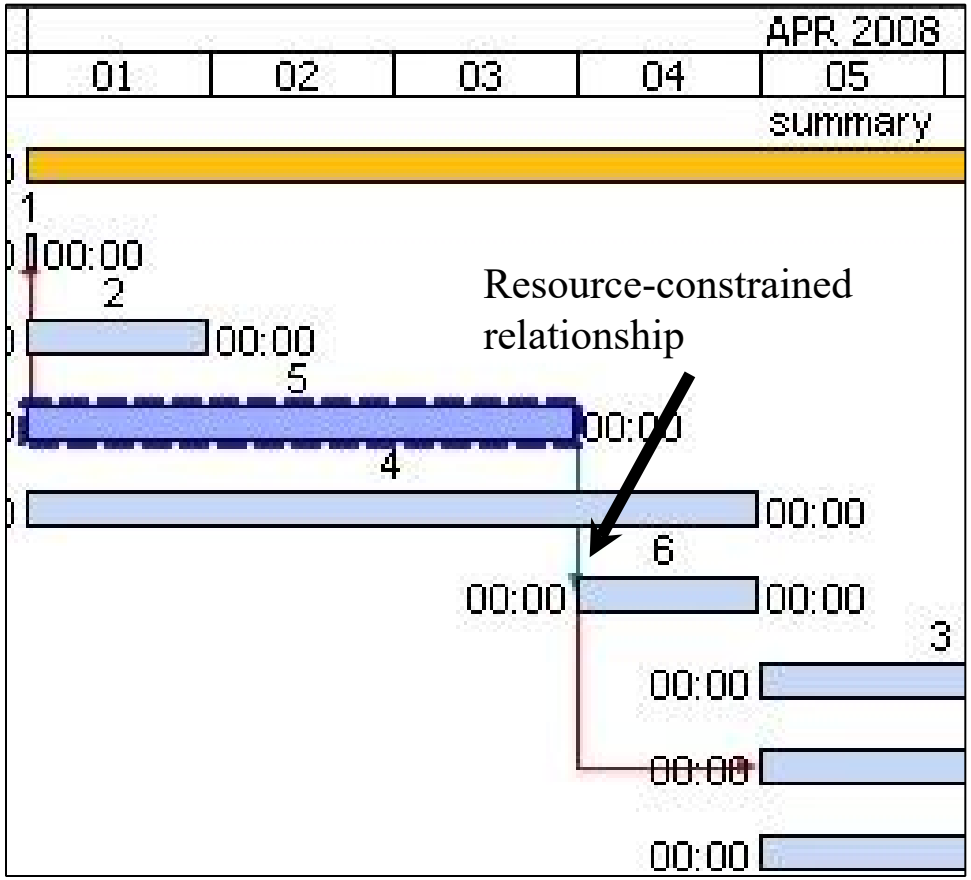
Resource Contention: Visual

Viewing resource contentions in Aurora

In this sample schedule, each task has a resource requirement attached as follows

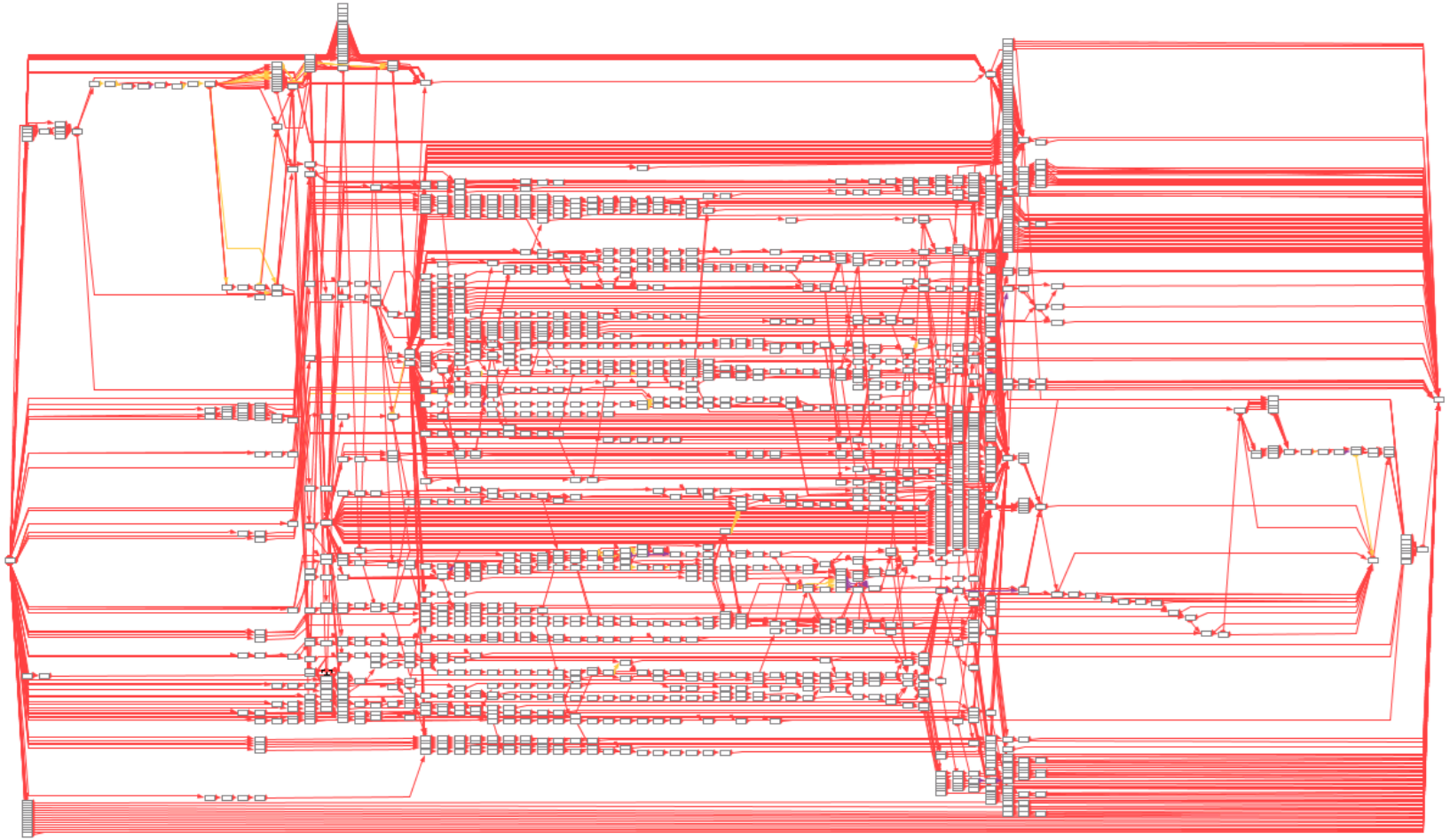
Task #	Resources Needed
2	1
3	2
4	2
5	2

Note that there is a total amount of only 5 resources. Tasks 2, 4, and 5 are started at the same time (5 resources used). Task 2 completes, but there are not enough resources left to start Task 6, so Task 6 must wait until Task 5 is complete.



Aurora shows you this resource-constrained relationship with a blue-grey line between the two Tasks.

Turnaround Project Network 2,500+ Tasks



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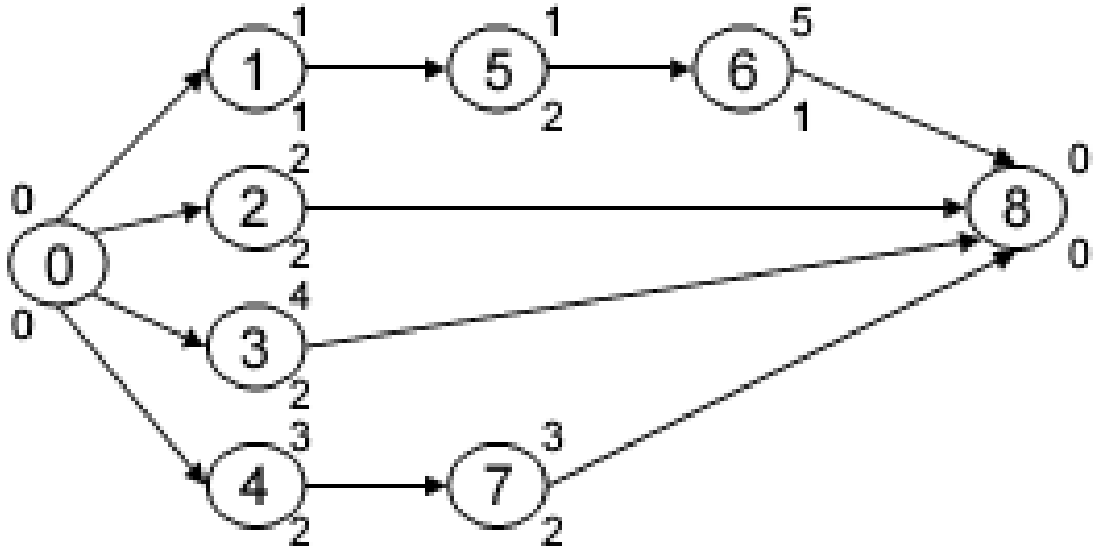
Results: 2,500+ Turnaround

- Primavera P6 **65** days
  - Performed by 3rd party
- Aurora **57** days
- Primavera P6 **14% longer** than Aurora
- Critical Path is 46 days
  - P6 is 19 days longer than CP
  - Aurora is 11 days longer than CP
  - So **% diff over CP is > 73%**

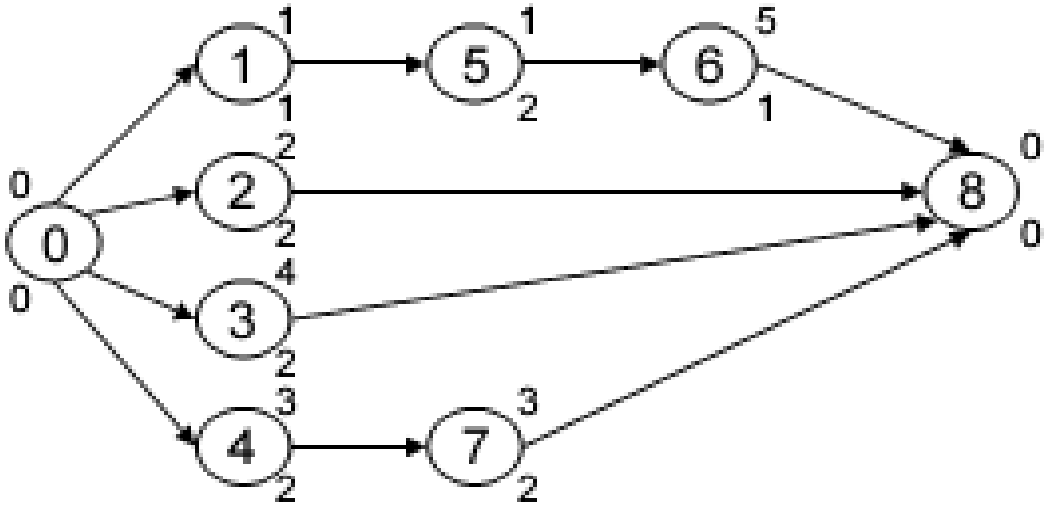
Maybe Only for ‘Big’ Problems?

- Let’s look at a toy problem …
- ‘Simple’ problem with only 7 real tasks and 2 milestones.



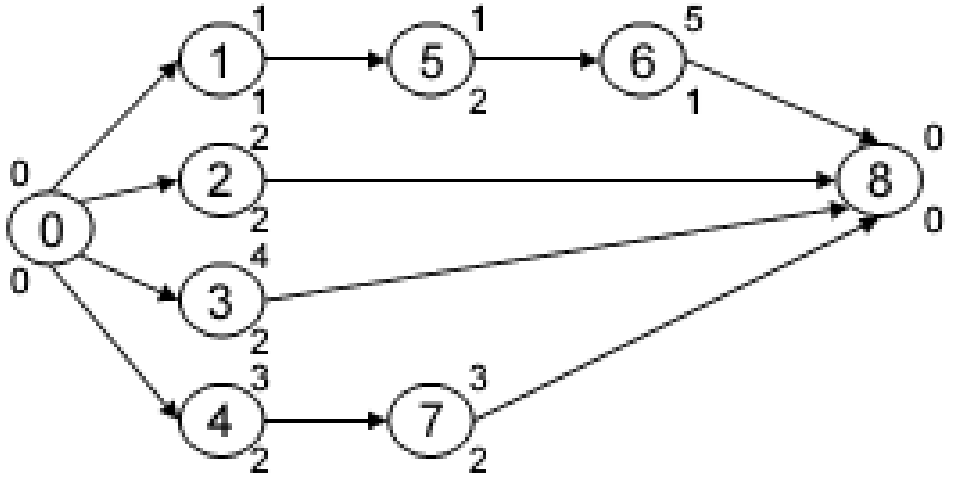
‘Simple’ Network details

- Number superscript of circle is duration in days
- Number subscript of circle is resources needed
- There is only 1 type of resource



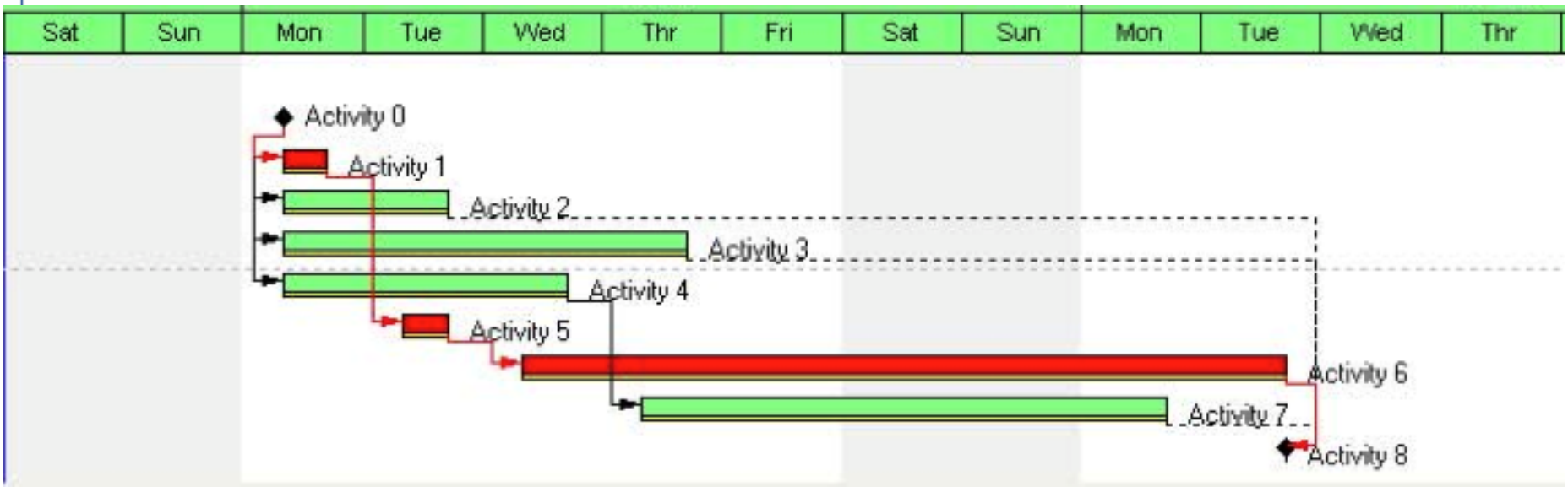
Critical Path of Network

- Solution when infinite resources available
  - Find longest path = 1 + 1 + 5 = 7
- So Critical Path is 7 days



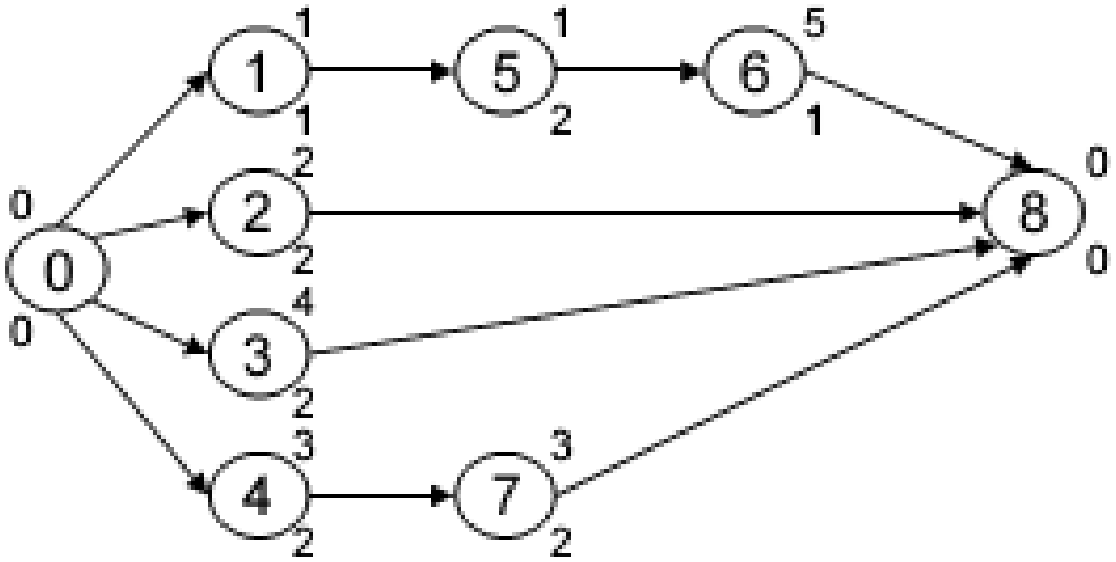
Gantt Chart of Critical Path

- Note: Sat/Sun are not workdays



Set Resource Pool to 5

- Only one type of resource to make the problem ‘simple’

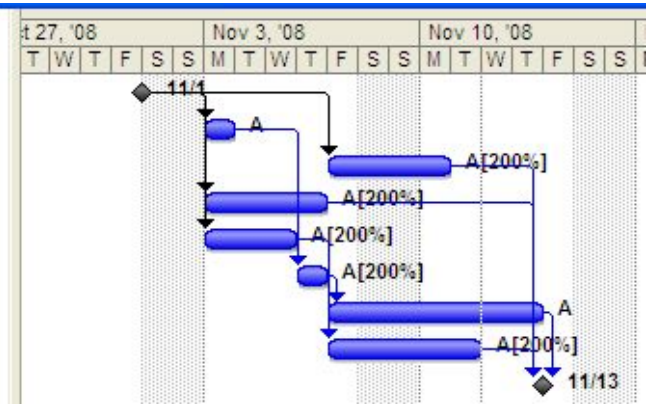


Gantt Chart Showing the Critical Path & Histogram

- Note: now some resources are overloaded
- Resource level to solve over allocation

Resource-Leveled in MS Project = 9 days

	Task Name	Duration	Start	Finish	Predecessors	Resource Names
1	T0	0 hrs	Sat 11/1/08 12:00 AM	Sat 11/1/08 12:00 AM		
2	T1	8 hrs	Mon 11/3/08 8:00 AM	Mon 11/3/08 5:00 PM	1	A
3	T2	16 hrs	Fri 11/7/08 8:00 AM	Mon 11/10/08 5:00 PM	1	A[200%]
4	T3	32 hrs	Mon 11/3/08 8:00 AM	Thu 11/6/08 5:00 PM	1	A[200%]
5	T4	24 hrs	Mon 11/3/08 8:00 AM	Wed 11/5/08 5:00 PM	1	A[200%]
6	T5	8 hrs	Thu 11/6/08 8:00 AM	Thu 11/6/08 5:00 PM	2	A[200%]
7	T6	40 hrs	Fri 11/7/08 8:00 AM	Thu 11/13/08 5:00 PM	6	A
8	T7	24 hrs	Fri 11/7/08 8:00 AM	Tue 11/11/08 5:00 PM	5	A[200%]
9	T8	0 hrs	Thu 11/13/08 5:00 PM	Thu 11/13/08 5:00 PM	7,8,3,4	



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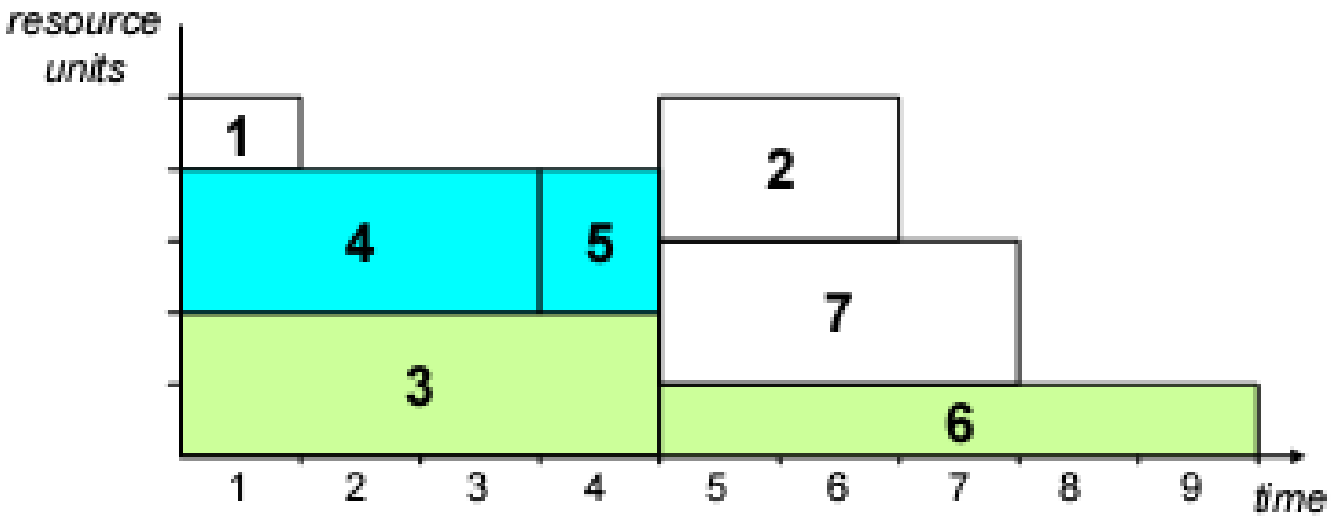
Simple Enough, Right?

- Another view of the solution



But there is a better solution …
P6 Model: Resource Leveled = 8 days

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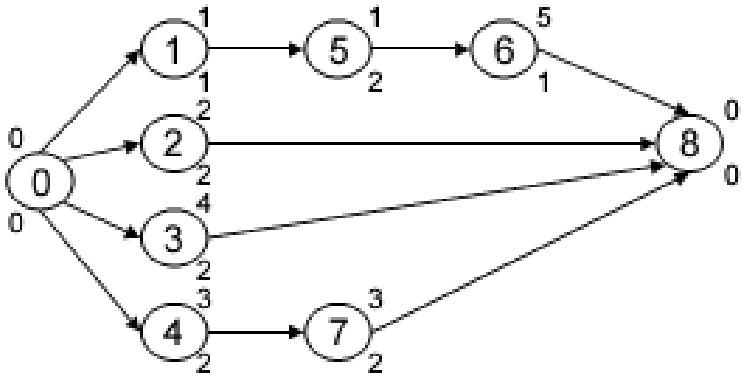
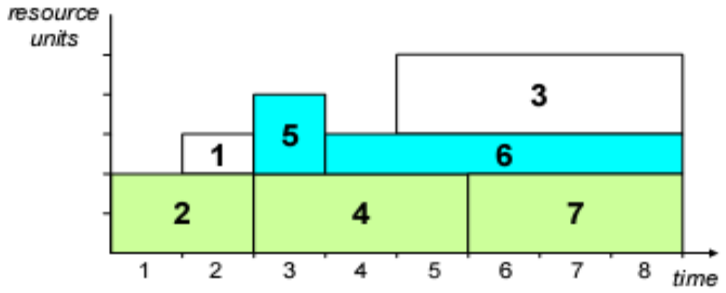
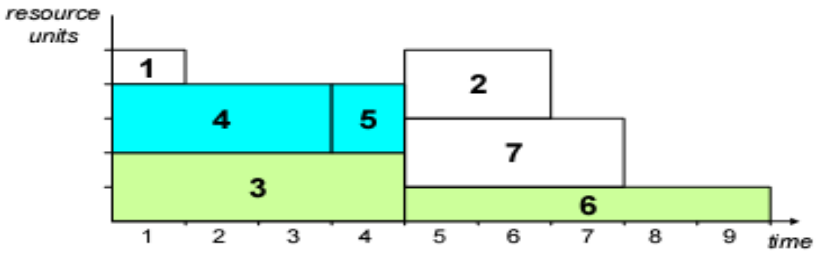
Simple?







- Critical Path =
  1 + 1 + 5 =7
- 1 resource
  5 total units

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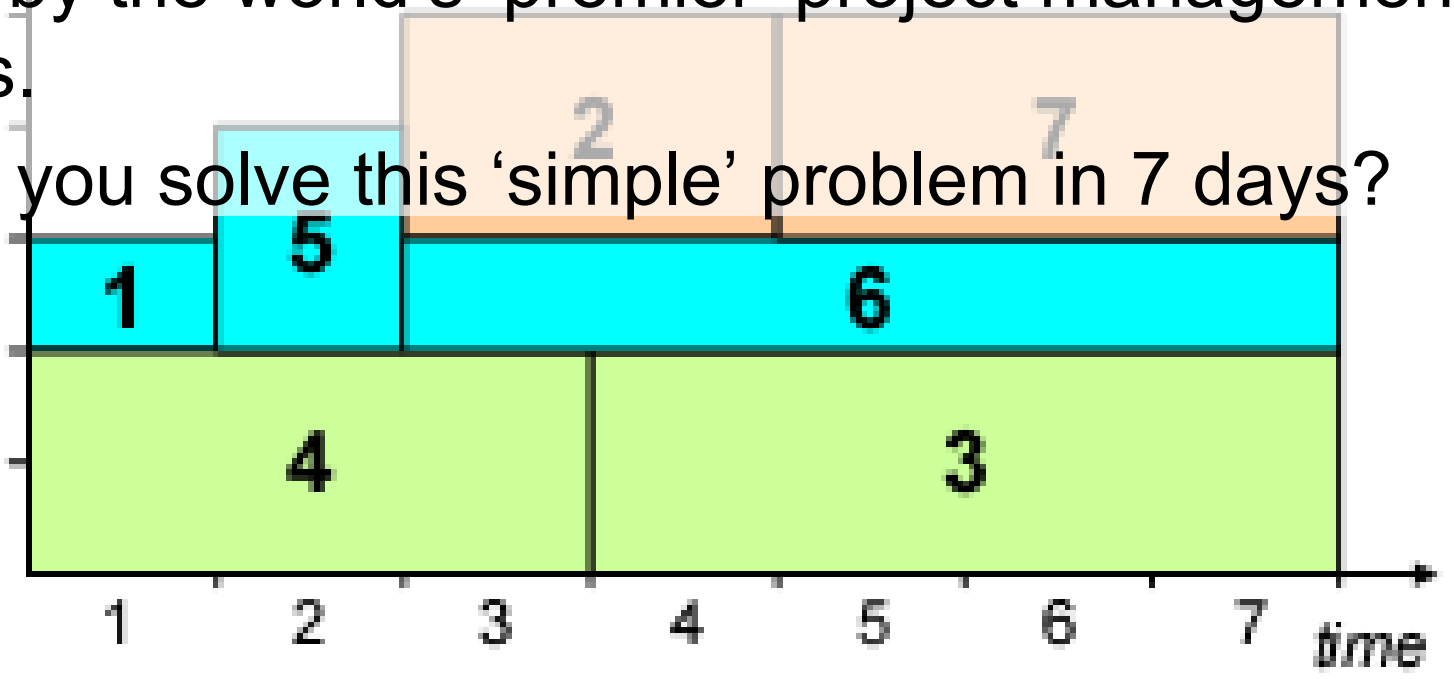
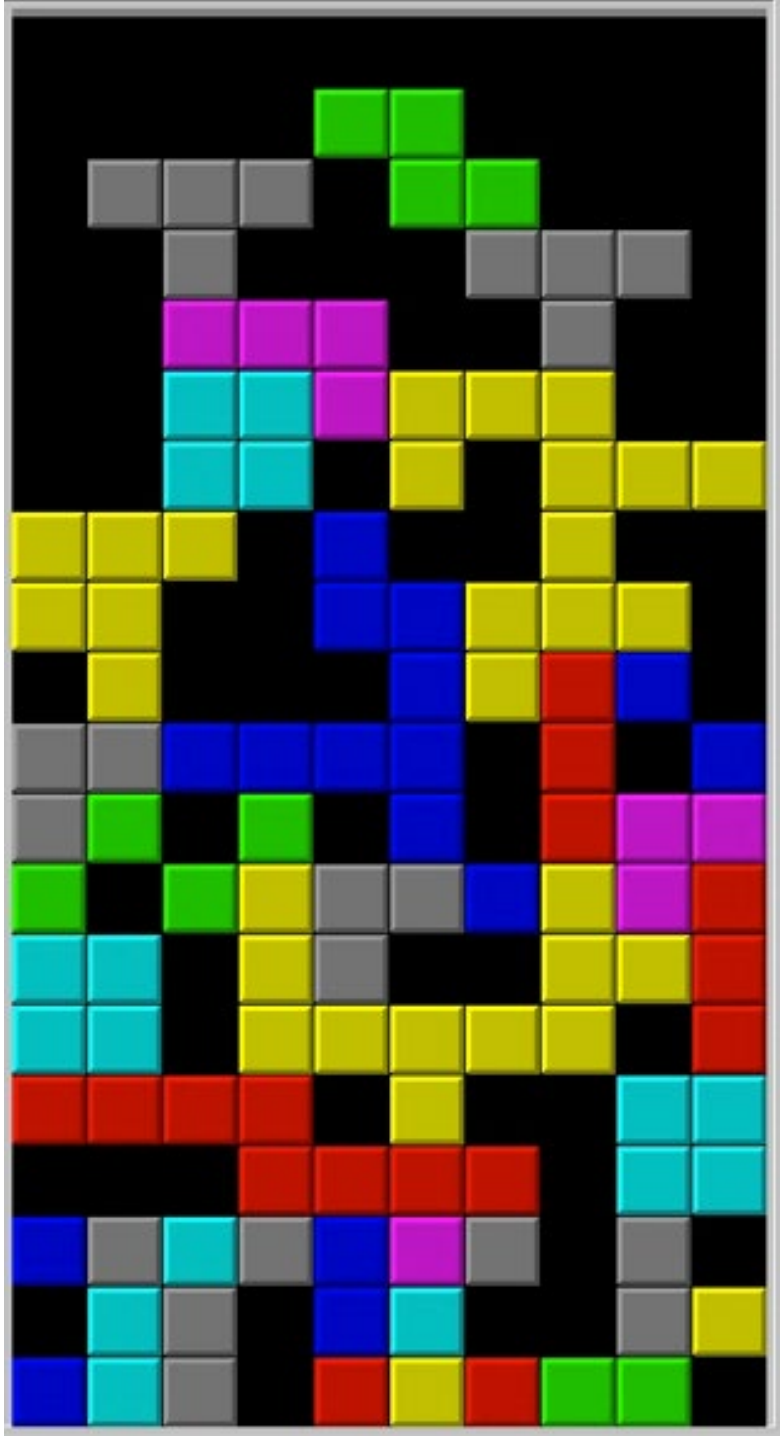
End of Story… Not quite

- There is an even better solution
- 7 days
- So this ‘simple’ problem could not even be solved well by the world’s ‘premier’ project management tools.
- Can you solve this ‘simple’ problem in 7 days?

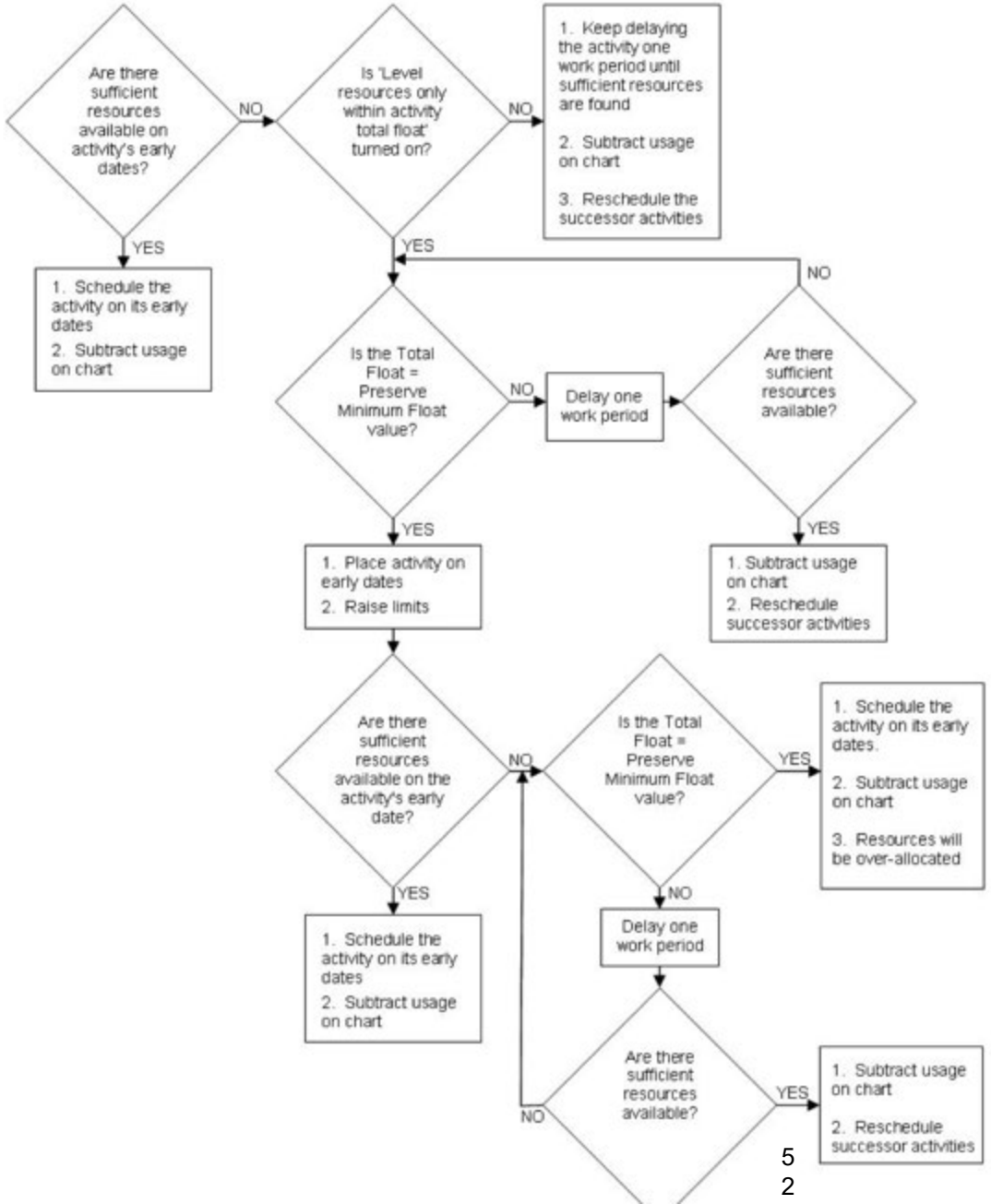


Tetris

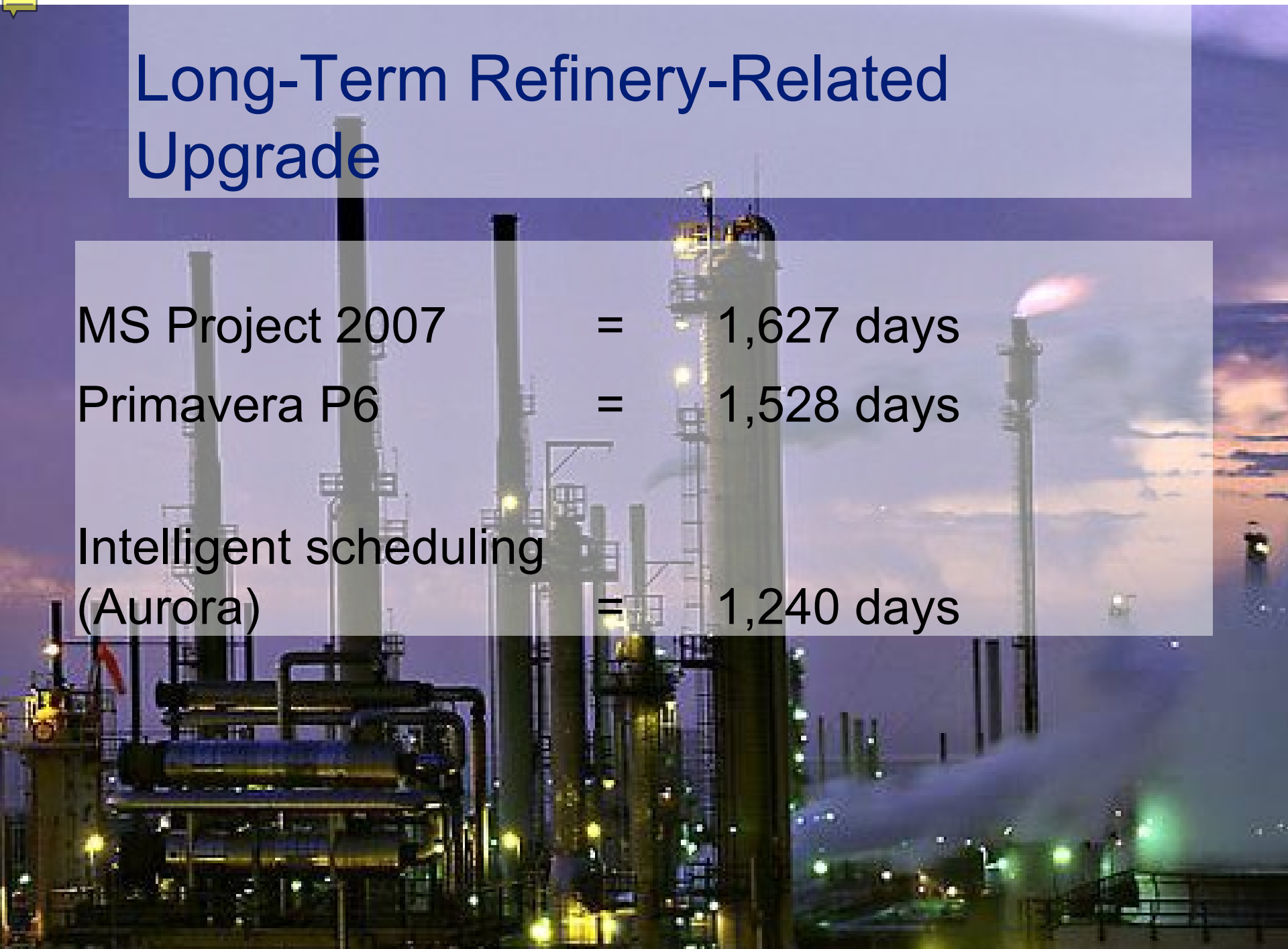
- Shapes similar to resource profile of individual tasks
- Holes when playing Tetris represent resource allocation inefficiencies.
  - E.g., black regions in figure to the right



Primavera Resource Leveling flowchart



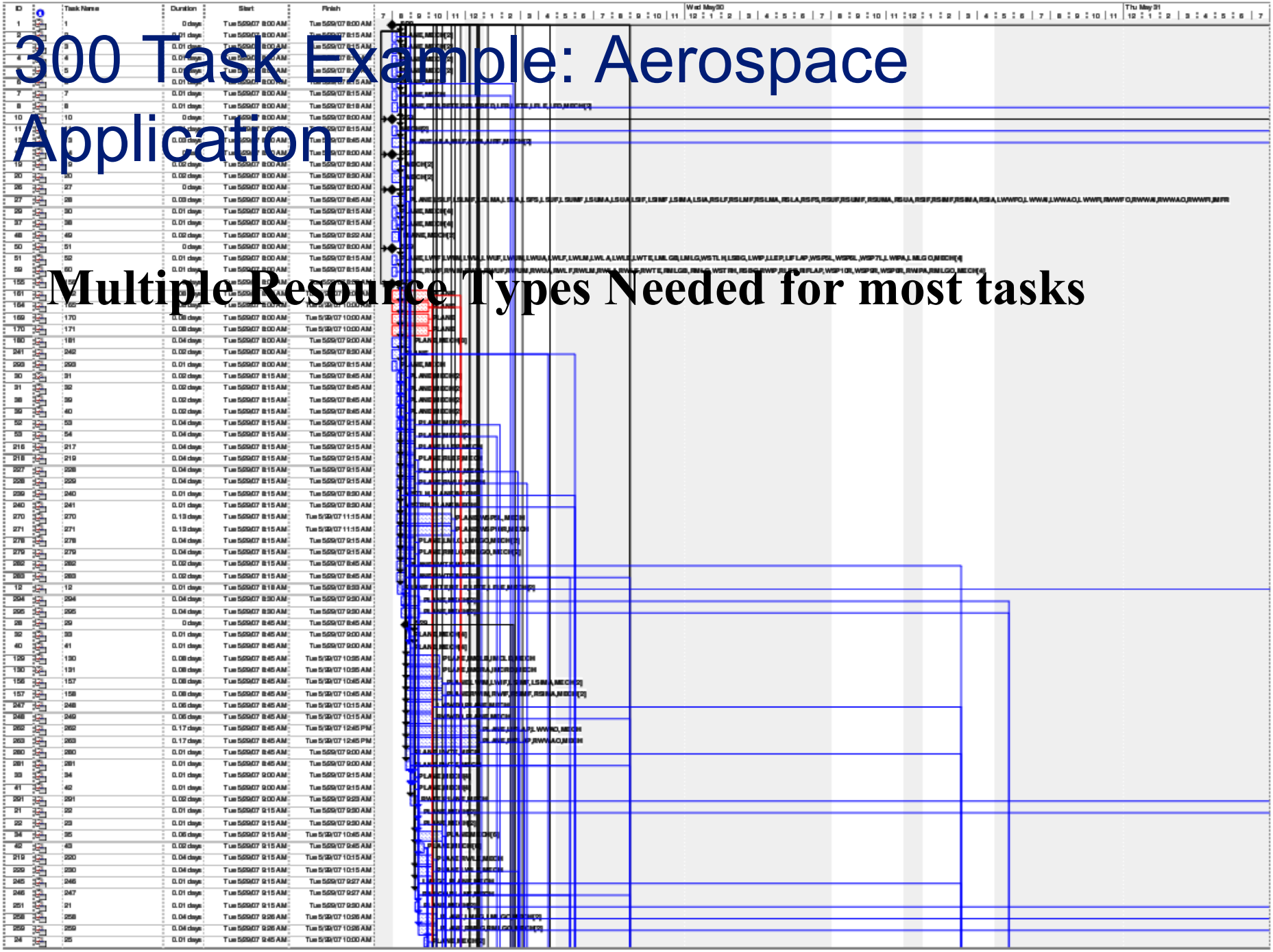
Long-Term Refinery-Related Upgrade



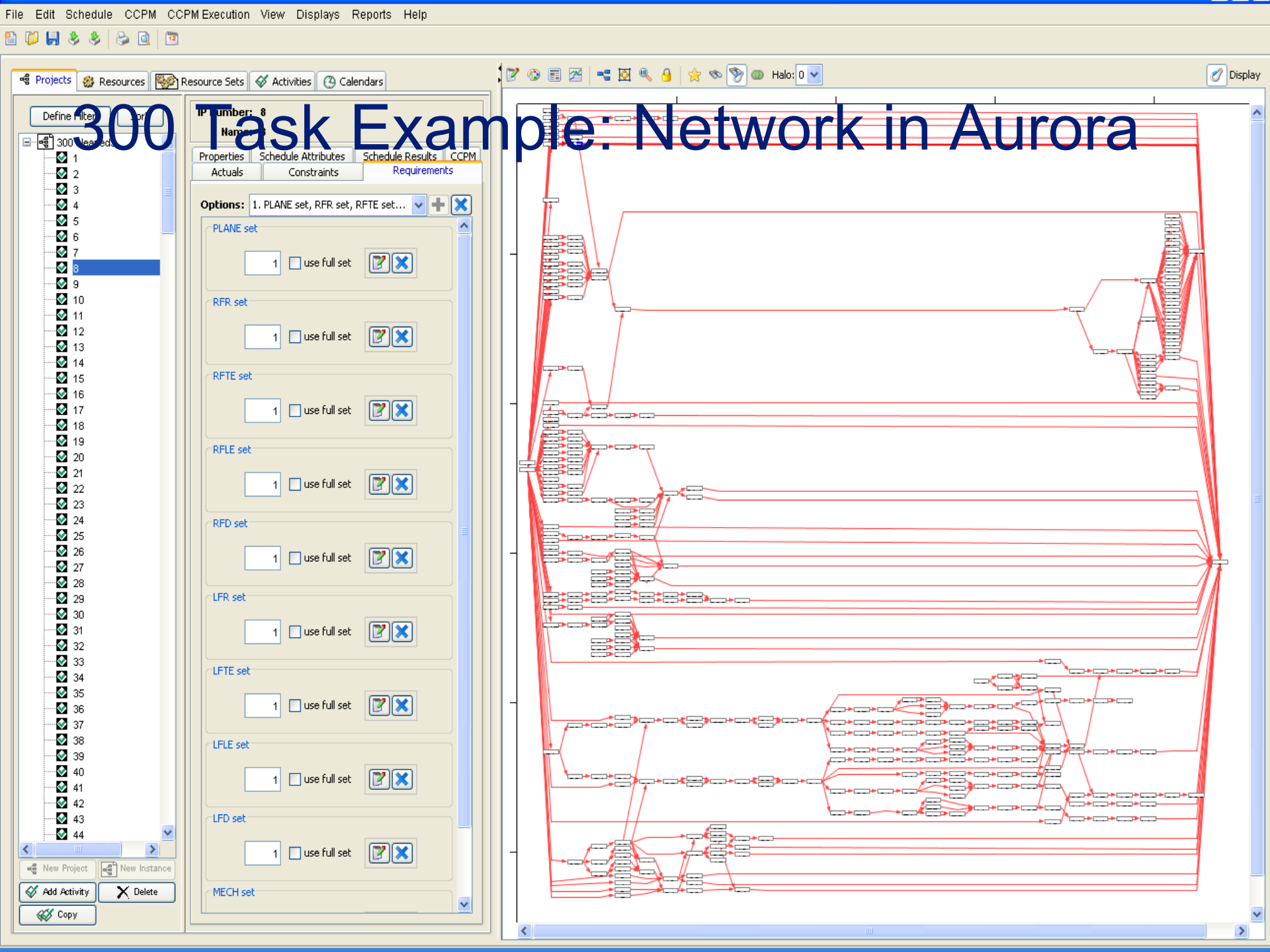
MS Project 2007	=	1,627 days
Primavera P6	=	1,528 days
Intelligent scheduling (Aurora)	=	1,240 days

300 Task Example: Aerospace Application

Multiple Resource Types Needed for most tasks



300 Task Example: Network in Aurora



Results: 300 Task Example

- MS Project 2003 **145.6** days
- MS Project 2007 **145.6** days
- Primavera P6 **115** days
  - Performed by 3rd party
- Deltek Open Plan **110** days
  - Performed by Deltek
- Aurora **102.5** days