Modelling

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13 - 14 December 1993

Modelling

Combining scenario characteristics with demographics to calculate user demand

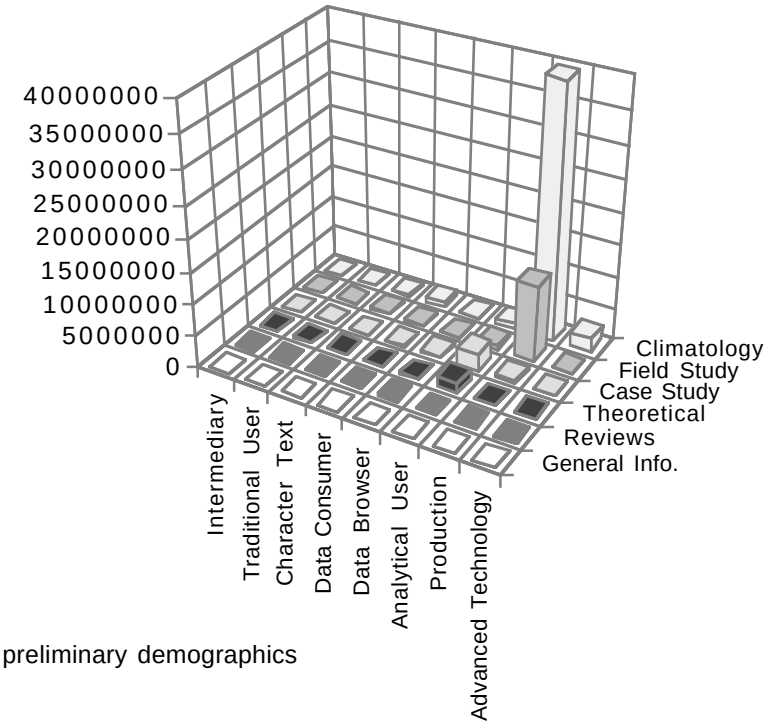
Using static model to calculate data production load

These provide inputs for future dynamic model

State of the Modelling

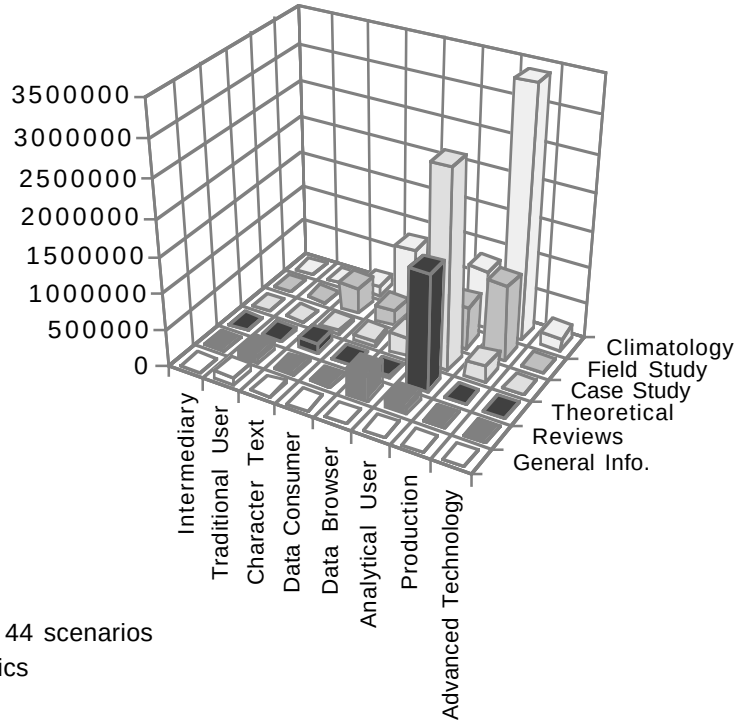
Where We Are Going	Where We Are
1 or more scenarios per cell	spread 14 scenarios across matrix
dynamic analysis of system loading and interactions	static loading model
richer information about variability from demographics	coarsely accumulated information
detailed analysis of model output	summary of key features

Total Yearly Data Accesses
(with Scenario 47)



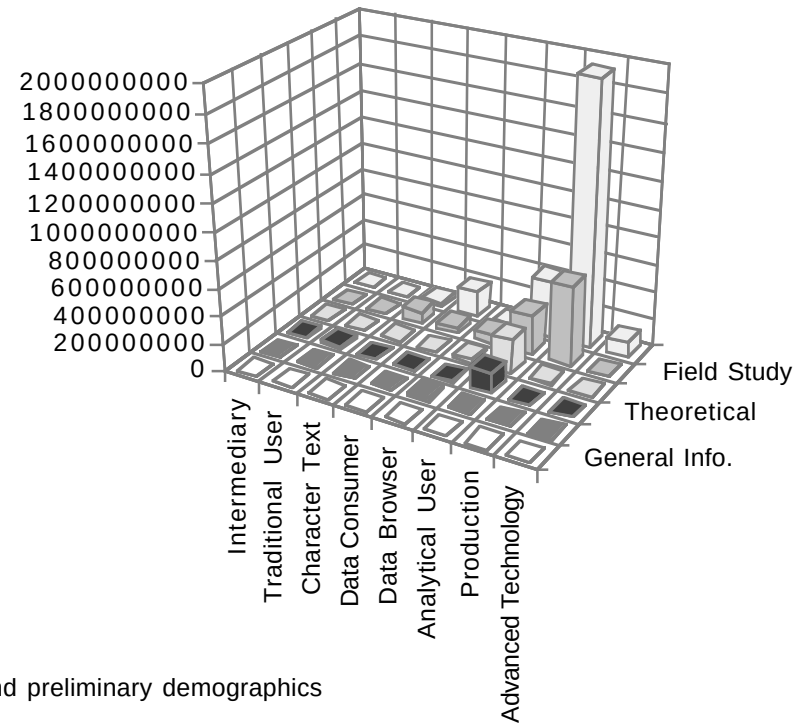
* Based on 14 of 44 scenarios and preliminary demographics

Total Yearly Data Accesses
(sans Scenario 47)



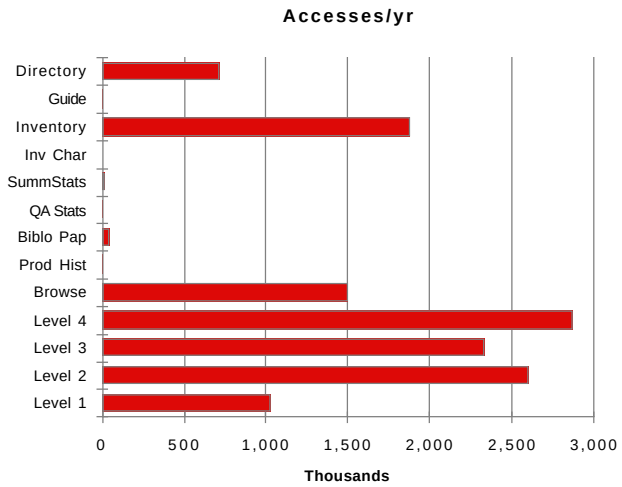
* Based on 13 (scenario 47 removed) of 44 scenarios and preliminary demographics

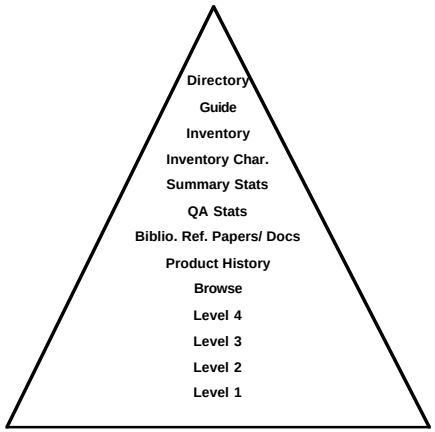
Total Yearly Data Volume (MB)

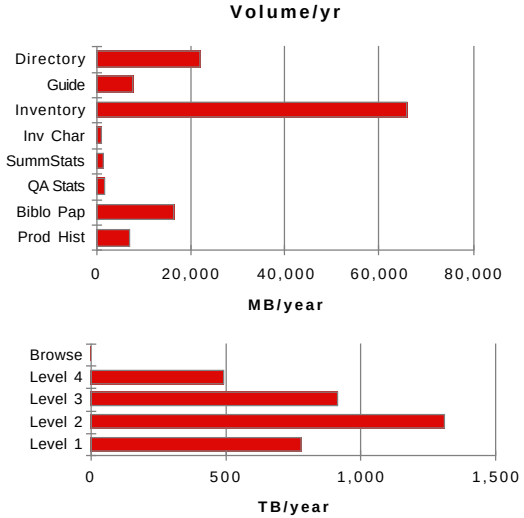


* Based on 14 of 44 scenarios and preliminary demographics

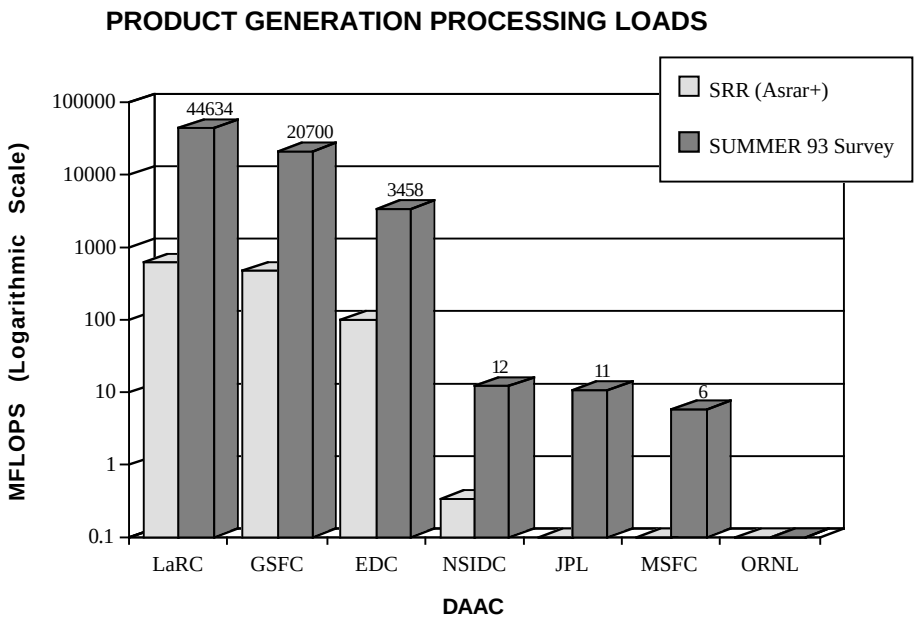
Usage by Data Class





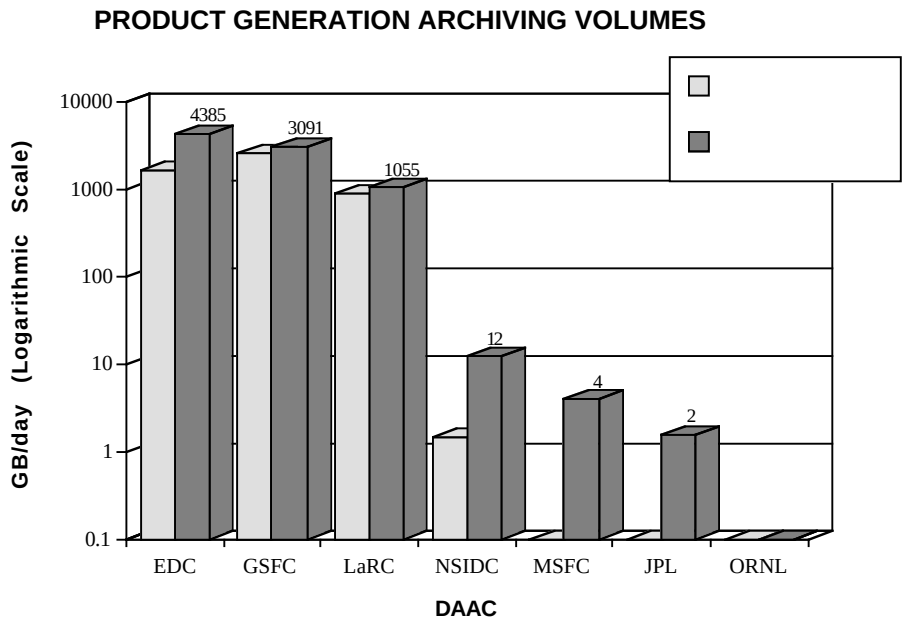


Product Generation Processing Loads



- **1X PROCESSING, 2X REPROCESSING, NO I&T**
- **20%/YEAR LINEAR GROWTH**
- **25% UTILIZATION NOT INCLUDED**

Product Generation Archiving Volumes



- **1X PROCESSING, 2X REPROCESSING, NO I&T**
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Product Generation Communications (I/O)

Based on Asrar+ Data

Inter DAAC I/O

Source	Destination EDC	GSFC	JPL	LARC	MSFC	NSIDC	Cumulative GB/day	Cumulative Mb/sec
	GB/day							
EDC	3,127	31				N/A	31	3
GSFC	131	1,486		3		N/A	134	12
JPL			N/A					
LARC	228			921			228	21
MSFC					1	N/A		
NSIDC		1				N/A	1	
ORNL								
GB/day	359	32		3				
Mb/sec	33	3						

* no ORNL or ADC

N/A = not calculated

Based on the Summer '93 Survey Data

Inter DAAC I/O

Source	Destination EDC	GSFC	JPL	LARC	MSFC	NSIDC	Cumulative GB/day	Cumulative Mbit/sec
	GB/day							
EDC	4,096	175		70		14	259	24
GSFC	3,084	2,901		525		1,788	5,398	500
JPL	0	1	2				1	
LARC	16	16		1,041			32	3
MSFC					4			
NSIDC		2				11	2	
ORNL								
GB/day	3,100	193		595		1,802		
Mb/sec	287	18		55		167		

* no ORNL or ADC

Traffic between Prod.Gen. and Archive

All table entries are rounded to the nearest GB

User/Data Modelling Summary

- Proactive interaction with user community
- Architecture addresses insights gained
- Identified tall poles and refined process
- Continuing analysis
  - more scenarios
  - refined demographics
  - dynamic model