

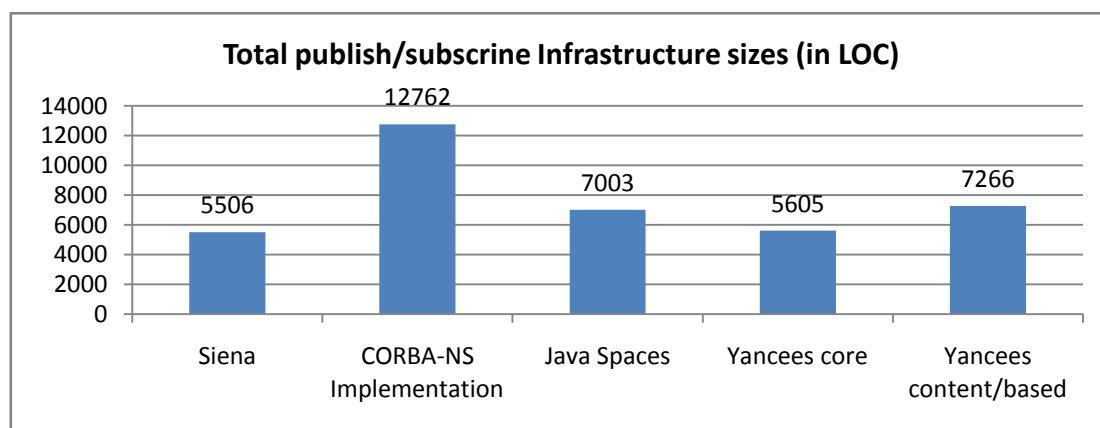
Comparative study of different publish/subscribe infrastructures

Application domain: EDEM - Expectation Driven Event Monitoring

Infrastructures used: CORBA-NS, Siena, JavaSpaces, YANCEES

Infrastructure Sizes

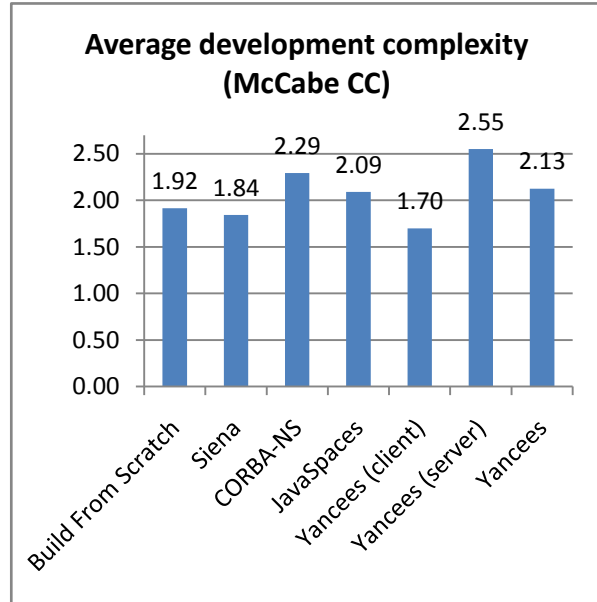
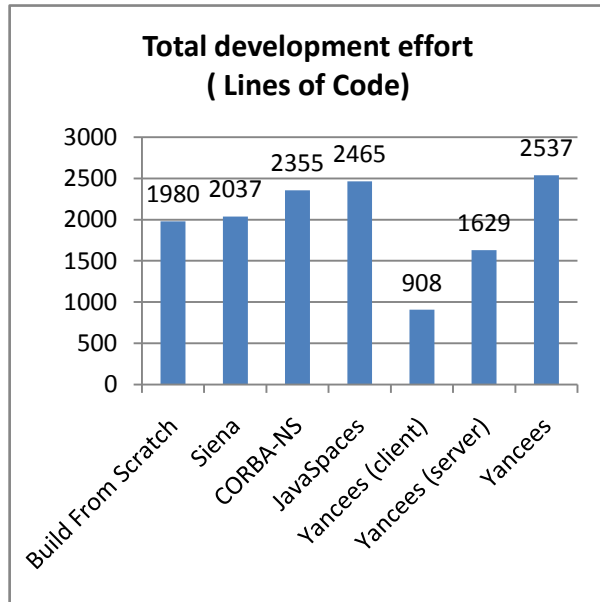
INFRASTRUCTURES	LOC	#Method	#Classes	#Interface	McCabe CC
Siena	5506	471	62	7	2.73
CORBA-NS generated code	85128	5731	1196	208	1.90
CORBA-NS Implementation	12762	835	61	17	2.33
CORBA-NS	97890	6566	1257	225	2.12
Java Spaces	7003				
Yancees core	5605	471	72	27	2.25
Yancees content/based	7266	621	87	27	2.34



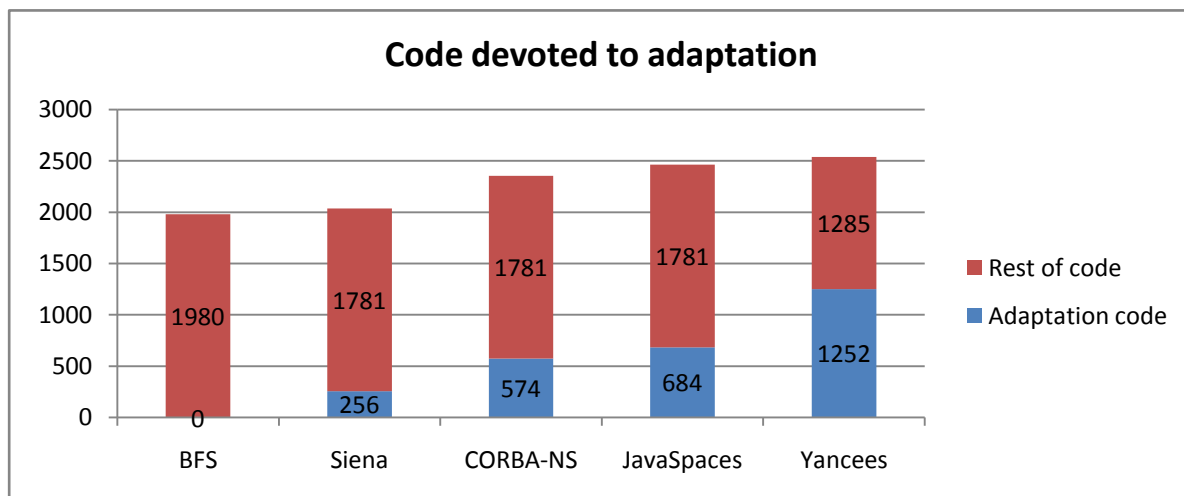
Benchmark: Extend the infrastructures to support EDEM requirements

COMPONENTS	LOC	#Method	#Classes	#Interface	McCabe CC
Edem API test code	1062	56	17	0	2.30
Benchmark	274	14	2	0	2.60
EDEM Interface	192	0	1	22	1.00
EDEM Kernel	1206	128	17	0	2.17
Simple Tuple Space	383	38	6	5	2.20
BFS API Imp.	199	17	3	2	2.30
Siena API Imp.	256	39	2	0	2.00
CORBA-NS API Imp.	574	22	3	0	3.80
JavaSpaces API Imp.	684	50	7	1	3.00
Yancees API Imp.	716	53	7	0	2.40
Yancees Tspace Protocol	159	16	3	2	1.40
Yancees Guard subscriptio	119	14	2	1	3.14
Yancees Pattern subscript	226	12	2	0	5.10
Yancees Rule subscription	365	36	5	1	2.70
Yancees State filter	261	21	3	0	2.40
Yancees TS service façade	116	12	1	0	2.08
Yancees Configuration File	93				
Yancees XMLSchema exte	100				

TOTALIZATION	LOC	#Method	#Classes	#Interface	McCabe CC
Build From Scratch	1980	183	27	29	1.92
Siena	2037	205	26	27	1.84
CORBA-NS	2355	188	27	27	2.29
JavaSpaces	2465	216	31	28	2.09
Yancees (client)	908	53	8	22	1.70
Yancees (server)	1629	149	22	9	2.55
Yancees	2537	202	30	31	2.13

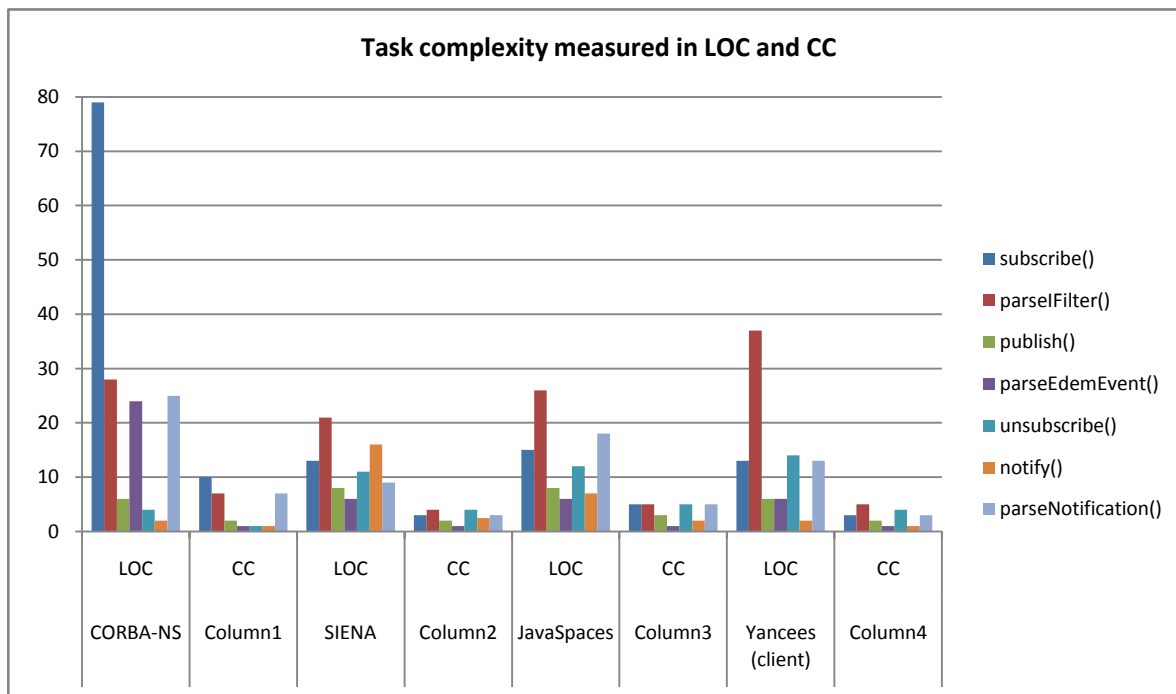


ADAPTATION COST (LOC)	Total	Adaptation cost	Rest of code	Ratio
BFS	1980	0	1980	0.00%
Siena	2037	256	1781	12.57%
CORBA-NS	2355	574	1781	24.37%
JavaSpaces	2465	684	1781	27.75%
Yancees	2537	1252	1285	49.35%



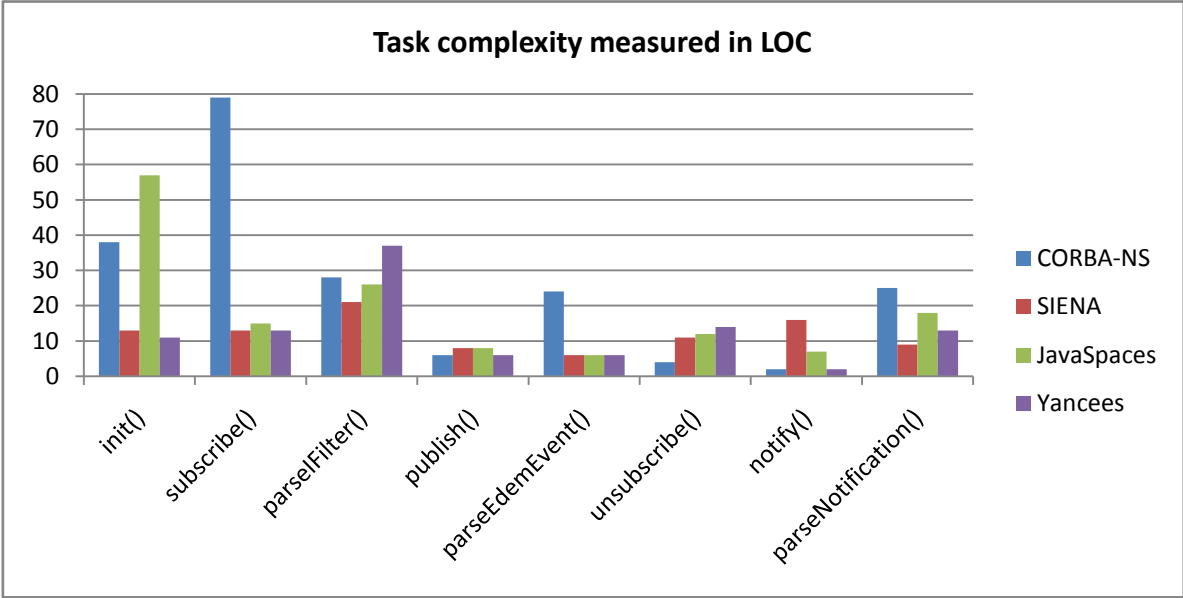
Individual Task Analysis

INFRASTRUCTUE	CORBA-N	Column1	SIENA	Column2	JavaSpac	Column3	Yancees	Column4
TASK	LOC	CC	LOC	CC	LOC	CC	LOC	CC
init()	38	8	13	2	57	2.6	11	2
subscribe()	79	10	13	3	15	5	13	3
parseFilter()	28	7	21	4	26	5	37	5
publish()	6	2	8	2	8	3	6	2
parseEdemEvent()	24	1	6	1	6	1	6	1
unsubscribe()	4	1	11	4	12	5	14	4
notify()	2	1	16	2.5	7	2	2	1
parseNotification()	25	7	9	3	18	5	13	3



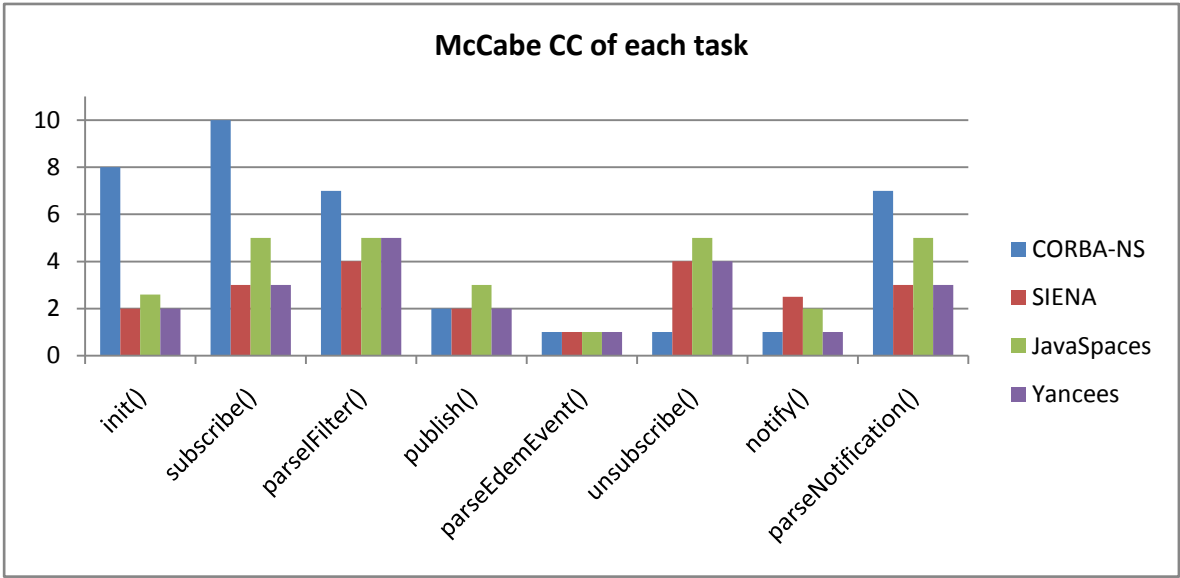
Complexity in Lines of Code

INFRASTRUCTUE	CORBA-NS	SIENA	JavaSpaces	Yancees
init()	38	13	57	11
subscribe()	79	13	15	13
parseFilter()	28	21	26	37
publish()	6	8	8	6
parseEdemEvent()	24	6	6	6
unsubscribe()	4	11	12	14
notify()	2	16	7	2
parseNotification()	25	9	18	13



Complexity in McCabe CC

INFRASTRUCTUE	CORBA-NS	SIENA	JavaSpaces	Yancees
init()	8	2	2.6	2
subscribe()	10	3	5	3
parseFilter()	7	4	5	5
publish()	2	2	3	2
parseEdemEvent()	1	1	1	1
unsubscribe()	1	4	5	4
notify()	1	2.5	2	1
parseNotification()	7	3	5	3



PERFORMANCE	BFS	Siena	Yancees	JavaSpace	CORBA-NS
StateFilter	1	1	5	167	1
EventFilter	1	2	67	331	695
Pattern	1	5	98	388	786
Rule	2	4	103	493	1052

