

Kubernetes FM

The Kubernetes variability model synthesized from the API Reference documentation.
Tags: Kubernetes, containerization, deployment, manifest files, orchestration platform
Author: Anonymous
Year: 2024
Domain: Deployment software

Features	738	
Abstract features	13	(2%)
Abstract leaf features	0	(0%)
Abstract compound features	13	(100%)
Concrete features	725	(98%)
Concrete leaf features	550	(76%)
Concrete compound features	175	(24%)
Compound features	188	(25%)
Leaf features	550	(75%)
Root feature	1	(0%)
Top features	11	(1%)
Solitary features	532	(72%)
Grouped features	206	(28%)
Typed features	319	(43%)
Numerical features	57	(8%)
Integer features	57	(8%)
Real features	0	(0%)
String features	262	(36%)
Multi-features	61	(8%)
Tree relationships	569	
Mandatory features	194	(36%)
Optional features	337	(63%)
Feature groups	38	(7%)
Alternative groups	34	(89%)
Or groups	4	(11%)
Mutex groups	0	(0%)
Cardinality groups	0	(0%)
Depth of tree	8	
Mean depth of tree	4.83	
Branching factor	3.92	
Min children per feature	1	
Max children per feature	28	
Avg children per feature	1	
Cross-tree constraints	93	
Logical constraints	59	(63%)
Single feature constraints	0	(0%)
Simple constraints	34	(58%)
Requires constraints	28	(82%)
Excludes constraints	6	(18%)
Complex constraints	25	(42%)
Pseudo-complex constraints	14	(56%)
Strict-complex constraints	11	(44%)
Arithmetic constraints	34	(37%)
Aggregation constraints	0	(0%)
Features in constraints	172	(23%)
Min features per constraint	1	
Max features per constraint	19	
Avg features per constraint	2.61	
Avg constraints per feature	1.41	
Min constraints per feature	1	
Max constraints per feature	7	
Attributes	5	
Features with attributes	538	(73%)
Min attributes per feature	0	
Max attributes per feature	2	
Avg attributes per feature	0.85	
Avg attributes per feature w. attributes	1.17	

Satisfiable (valid)	Yes
Core features	27 (4%)
False-optional features	14 (2%)
Dead features	207 (28%)
Variant features	504 (68%)
Unique features	0 (0%)
Pure optional features	79 (11%)
Configurations	5.73e77
Total variability	3.97e-143%
Partial variability	1.10e-72%
Homogeneity	43.29%
Configuration distribution	
Mean	319.5
Standard deviation	14.36
Median	320
Median absolute deviation	11.44
Mode	320
Min	9
Max	484
Range	475