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## 7 **Network Policy Management Profile**

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# CONTENTS

36	Foreword .....	5
37	Introduction.....	6
38	1 Scope .....	7
39	2 Normative references .....	7
40	3 Terms and definitions .....	7
41	4 Symbols and abbreviated terms .....	8
42	5 Synopsis .....	9
43	6 Description .....	9
44	6.1 Class diagram .....	10
45	7 Implementation.....	11
46	7.1 Representing the policy management capabilities .....	11
47	7.1.1 CIM_NetworkPolicyService .....	11
48	7.1.2 CIM_NetworkPolicyServiceCapabilities .....	11
49	7.2 Representing the Network Policy.....	11
50	7.2.1 CIM_NetworkPolicyRule .....	11
51	7.2.2 CIM_NetworkPolicyCondition .....	12
52	7.2.3 CIM_NetworkPolicyAction .....	12
53	7.3 Network Policy configuration .....	12
54	7.3.1 CIM_NetworkPolicyRuleSettingData .....	12
55	7.3.2 CIM_NetworkPolicyActionSettingData.....	12
56	8 Methods.....	12
57	8.1 Extrinsic methods.....	13
58	8.1.1 Job parameter.....	13
59	8.1.2 CIM_NetworkPolicyService.CreatePolicyRule() .....	13
60	8.1.3 CIM_NetworkPolicyService.DeletePolicyRules( ).....	13
61	8.1.4 CIM_NetworkPolicyService.ApplyPolicyRule( ) (optional).....	14
62	8.1.5 CIM_NetworkPolicyService.ReleasePolicyRule( ) (optional) .....	14
63	8.2 Profile conventions for operations .....	14
64	8.3 CIM_NetworkPolicyService .....	14
65	8.4 CIM_NetworkPolicyServiceCapabilities .....	14
66	8.5 CIM_NetworkPolicyRule .....	14
67	8.6 CIM_NetworkPolicyCondition .....	14
68	8.7 CIM_NetworkPolicyAction .....	15
69	8.8 CIM_NetworkPolicyRuleSettingData .....	15
70	8.9 CIM_NetworkPolicyActionSettingData.....	15
71	9 Use cases.....	16
72	9.1 Profile registration .....	16
73	9.2 Profile extension and usage examples .....	16
74	9.2.1 Extending and using the Network Policy Management Profile .....	16
75	9.2.2 Load Balancer configuration .....	17
76	9.2.3 Firewall configuration .....	19
77	9.2.4 QoS Service configuration .....	20
78	10 CIM Elements.....	23
79	ANNEX A (informative) Change log.....	24

**81 Figures**

82	Figure 1 – Network Policy Management Profile: Class diagram.....	10
83	Figure 2 – Registered profile.....	16
84	Figure 3 – Network Management Policy extensions.....	17
85	Figure 4 – Example load balancing scenario .....	18
86	Figure 5 – Example load balancing configuration using Network Policy .....	18
87	Figure 6 – Example firewall configuration scenario .....	19
88	Figure 7 – Example firewall configuration scenario using Network Policy.....	20
89	Figure 8 – Example QoS Service configuration .....	21
90	Figure 9 - Example QoS Service configuration.....	22
91		

**92 Tables**

93	Table 1 – Referenced profiles .....	9
94	Table 2 – CIM Elements: Network Policy Management Profile .....	23
95		

96

## Foreword

97 The *Network Policy Management Profile* (DSP1048) was prepared by the Network Services Management  
98 Working Group of the DMTF.

99 DMTF is a not-for-profit association of industry members dedicated to promoting enterprise and systems  
100 management and interoperability.

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115

116

## Introduction

117 The information in this specification should be sufficient for a provider or consumer of this data to identify  
118 unambiguously the classes, properties, methods, and values that shall be instantiated and manipulated to  
119 represent and manage Network Services and the associated configuration information. The target  
120 audience for this specification is implementers who are writing CIM-based providers or consumers of  
121 management interfaces that represent the component described in this document.

## 122 Document conventions

### 123 Typographical conventions

124 The following typographical conventions are used in this document:

- 125 • Document titles are marked in *italics*.
- 126 • ABNF rules are in `monospaced font`.

127

128

# Network Policy Management Profile

## 129 1 Scope

130 The *Network Policy Management Profile* is a base (abstract) profile that will specify the CIM Schema and  
131 use cases associated with the general and common aspects of Network Policy Management. This profile  
132 includes a specification of the Network Policy Service, Network Policy, Network Policy Rule and Setting  
133 Data, Policy Conditions and Action and describes how the network Policies can be applied to the Managed  
134 Elements.

## 135 2 Normative references

136 The following referenced documents are indispensable for the application of this document. For dated or  
137 versioned references, only the edition cited (including any corrigenda or DMTF update versions) applies.  
138 For references without a date or version, the latest published edition of the referenced document  
139 (including any corrigenda or DMTF update versions) applies.

140 DMTF DSP0004, *CIM Infrastructure Specification 2.7*,  
141 [http://www.dmtf.org/standards/published\\_documents/DSP0004\\_2.7.pdf](http://www.dmtf.org/standards/published_documents/DSP0004_2.7.pdf)

142 DMTF DSP0200, *CIM Operations over HTTP 1.3*,  
143 [http://www.dmtf.org/standards/published\\_documents/DSP0200\\_1.3.pdf](http://www.dmtf.org/standards/published_documents/DSP0200_1.3.pdf)

144 DMTF DSP0223, *Generic Operations 1.0*,  
145 [http://www.dmtf.org/standards/published\\_documents/DSP0223\\_1.0.pdf](http://www.dmtf.org/standards/published_documents/DSP0223_1.0.pdf)

146 DMTF DSP1001, *Management Profile Specification Usage Guide 1.0*,  
147 [http://www.dmtf.org/standards/published\\_documents/DSP1001\\_1.0.pdf](http://www.dmtf.org/standards/published_documents/DSP1001_1.0.pdf)

148 DMTF DSP1033, *Profile Registration Profile 1.0*,  
149 [http://www.dmtf.org/standards/published\\_documents/DSP1033\\_1.0.pdf](http://www.dmtf.org/standards/published_documents/DSP1033_1.0.pdf)

150 ISO/IEC Directives, Part 2, *Rules for the structure and drafting of International Standards*,  
151 <http://isotc.iso.org/livelink/livelink.exe?func=ll&objId=4230456&objAction=browse&sort=subtype>

## 152 3 Terms and definitions

153 In this document, some terms have a specific meaning beyond the normal English meaning. Those terms  
154 are defined in this clause.

155 The terms "shall" ("required"), "shall not", "should" ("recommended"), "should not" ("not recommended"),  
156 "may," "need not" ("not required"), "can" and "cannot" in this document are to be interpreted as described  
157 in [ISO/IEC Directives, Part 2](#), Clause 7. The terms in parenthesis are alternatives for the preceding term,  
158 for use in exceptional cases when the preceding term cannot be used for linguistic reasons. Note that  
159 [ISO/IEC Directives, Part 2](#), Clause 7 specifies additional alternatives. Occurrences of such additional  
160 alternatives shall be interpreted in their normal English meaning.

161 The terms "clause", "subclause", "paragraph", and "annex" in this document are to be interpreted as  
162 described in [ISO/IEC Directives, Part 2](#), Clause 6.

163 The terms "normative" and "informative" in this document are to be interpreted as described in [ISO/IEC](#)  
164 [Directives, Part 2](#), Clause 3. In this document, clauses, subclauses, or annexes labeled "(informative)" do  
165 not contain normative content. Notes and examples are always informative elements.

166 The terms defined in [DSP0004](#), [DSP0223](#), and [DSP1001](#) apply to this document. The following additional  
167 terms are used in this document.

168 **3.1**

169 **conditional**

170 indicates requirements to be followed strictly to conform to the document when the specified conditions  
171 are met

172 **3.2**

173 **mandatory**

174 indicates requirements to be followed strictly to conform to the document and from which no deviation is  
175 permitted

176 **3.3**

177 **optional**

178 indicates a course of action permissible within the limits of the document

179 **3.4**

180 **pending configuration**

181 indicates the configuration that will be applied to an IP network connection the next time the IP network  
182 connection accepts a configuration

183 **3.5**

184 **referencing profile**

185 indicates a profile that owns the definition of this class and can include a reference to this profile in its  
186 "Referenced Profiles" table

187 **3.6**

188 **unspecified**

189 indicates that this profile does not define any constraints for the referenced CIM element or operation

190 **4 Symbols and abbreviated terms**

191 The abbreviations defined in [DSP0004](#), [DSP0223](#), and [DSP1001](#) apply to this document. The following  
192 additional abbreviations are used in this document.

193 **4.1**

194 **IP**

195 Internet Protocol

196 **4.2**

197 **VLAN**

198 Virtual Local Area Network



## 199 5 Synopsis

200 **Profile name:** Network Policy Management

201 **Version:** 1.0.0

202 **Organization:** DMTF

203 **CIM Schema version:** 2.43

204 **Central class:** CIM\_NetworkPolicyService

205 **Scoping class:** CIM\_System

206 The *Network Policy Management Profile* is a base profile that specifies the CIM Schema and use cases  
 207 associated with the general and common aspects of Network Policy Management. The Network Policy  
 208 Management Profile is an adaptation of the CIM Policy Management Profile.

209 Table 1 identifies profiles on which this profile has a dependency.

210

**Table 1 – Referenced profiles**

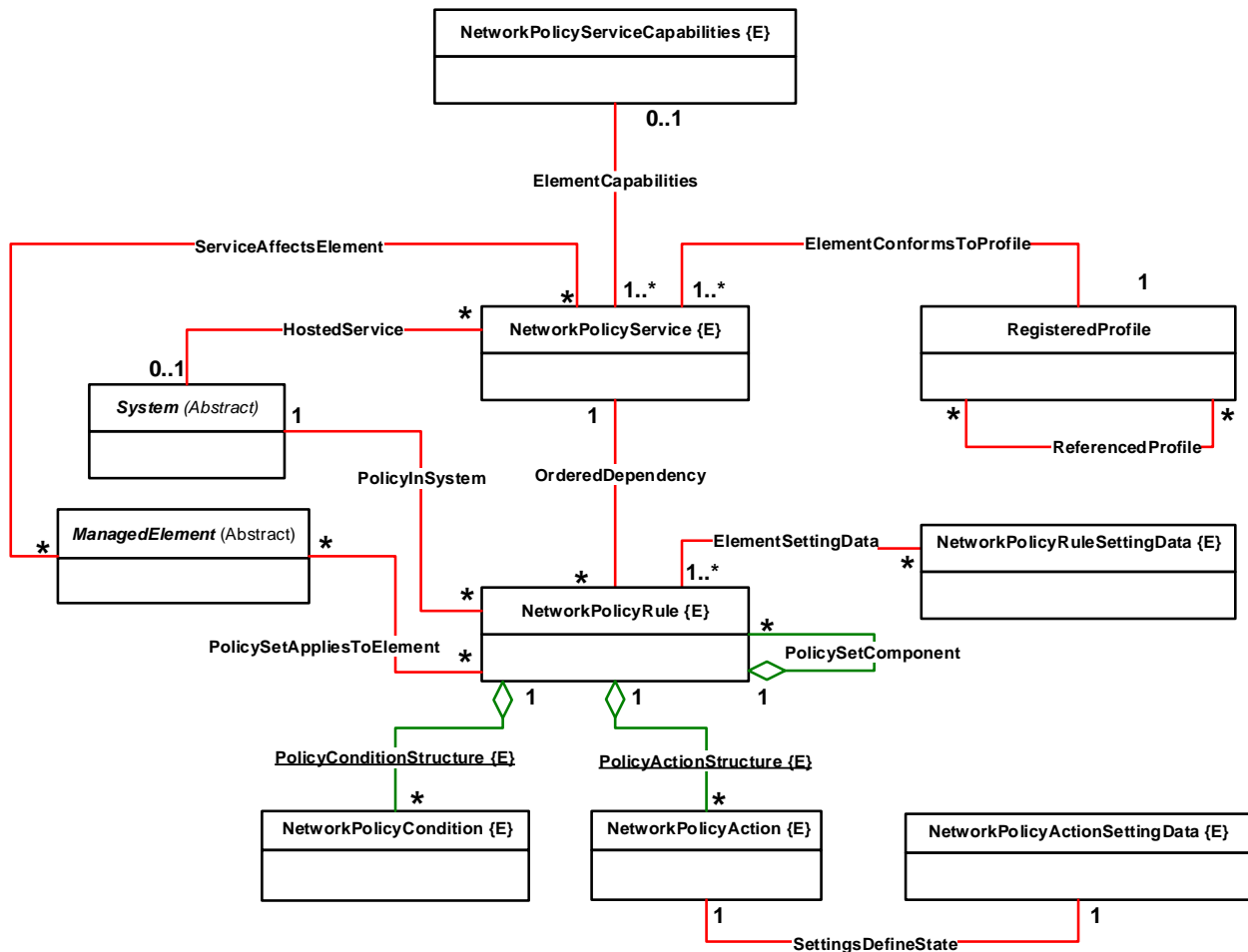
Profile Name	Organization	Version	Requirement	Description
Profile Registration	DMTF	1.0	Mandatory	None
Network Management Profile	DMTF	1.0	Optional	None
Policy Profile	DMTF	1.0	Mandatory	None

## 211 6 Description

212 The *Network Policy Management Profile* includes base specification of the Network Policy Management  
 213 Service, Network Policy, Network Policy Rule and Setting Data, and Policy Conditions and Action. This  
 214 standard describes how a Network Policy is applied to the Managed Elements and contains three  
 215 possible extensions representing QoS, Firewall, and Load Balancer policies. Other types of policies, for  
 216 example Access Control List (ACL) or routing policies, may be represented in a similar manner.

217 **6.1 Class diagram**

218 Figure 1 represents the class schema for the *Network Policy Management Profile*. For simplicity, the  
 219 CIM\_ prefix has been removed from the names of the classes.



220

221 **Figure 1 – Network Policy Management Profile: Class diagram**

222 Network Policy model is an extension of the existing CIM Policy model, where the  
 223 CIM\_NetworkPolicyRule extends the CIM\_PolicyRule class, and CIM\_NetworkPolicyCondition and  
 224 CIM\_NetworkPolicyAction extend CIM\_Policy. CIM\_NetworkPolicyService extends the CIM\_Service class  
 225 and provides policy management capabilities.

226 The Network Policy Service is hosted on a System (for example an instance of the Computer System  
 227 representing a network appliance, device or a network management system/controller) and serves as a  
 228 management gateway through which the instances of CIM\_NetworkPolicyRule are created, configured,  
 229 and applied to the instances of CIM\_ManagedElement subclasses, for example, CIM\_Network,  
 230 CIM\_ProtocolEndpoint, subclasses of CIM\_Service (e.g., for configuration of the routing policies), etc.

231 The CIM\_NetworkPolicyRule may be subclassed to represent different types of network policies, for  
 232 example CIM\_QoSPolicyRule or CIM\_LoadBalancingPolicyRule.

233 There is a set of Network Policy Conditions that can be associated with the particular Network Policy  
 234 Rule. These conditions determine when the particular policy will be invoked. The conditions can be  
 235 evaluated in the specified order (see the definition of the CIM\_PolicyConditionStructure association for

236 how the condition evaluation order is specified). The set of the CIM\_NetworkPolicyAction instances  
237 associated with the Network Policy via the CIM\_PolicyActionStructure determines the actions that will be  
238 executed once the policy is triggered.

239 The Network Policy Rule and Network Policy Action are configured via the instances of  
240 CIM\_NetworkPolicyRuleSettingData and CIM\_NetworkPolicyActionSettingData classes or subclasses  
241 thereof.

242 The CIM\_NetworkPolicyRuleSettingData may be subclassed to represent the settings of the policies  
243 extending Network Policy Management Profile, for example CIM\_QoSRuleSettingData or  
244 CIM\_LoadBalancingRuleSettingData.

245 The CIM\_NetworkPolicyActionSettingData may be subclassed to represent the settings of the policies  
246 extending Network Policy Management Profile, for example CIM\_LoadBalancingActionSettingData.

247 The CIM\_NetworkPolicyServiceCapabilities class describes the capabilities offered by the Network Policy  
248 Management Service. The CIM\_RegisteredProfile provides the information about the Policy Management  
249 Profile registration.

## 250 **7 Implementation**

251 This clause details the requirements related to the arrangement of instances and properties of instances  
252 for implementations of this profile.

### 253 **7.1 Representing the policy management capabilities**

#### 254 **7.1.1 CIM\_NetworkPolicyService**

255 The instance of the CIM\_NetworkPolicyService class serves as a management endpoint through which  
256 the instances of CIM\_NetworkPolicyRule shall be created, configured, and applied to the managed  
257 elements. Zero or more instances of CIM\_NetworkPolicyService shall be instantiated.

258 The instances of the CIM\_NetworkPolicyService shall be associated with the instance of the scoping  
259 CIM\_System through an instance of CIM\_HostedService association.

#### 260 **7.1.2 CIM\_NetworkPolicyServiceCapabilities**

261 The CIM\_NetworkPolicyServiceCapabilities class represents the capabilities offered by the  
262 CIM\_NetworkPolicyService. There shall be at most one instance of the  
263 CIM\_NetworkPolicyServiceCapabilities class associated with at least one or more instances of  
264 CIM\_NetworkPolicyService.

### 265 **7.2 Representing the Network Policy**

#### 266 **7.2.1 CIM\_NetworkPolicyRule**

267 The CIM\_NetworkPolicyRule class extends the CIM\_PolicyRule and represents the Network Policy that is  
268 instantiated, configured, and applied to the various managed elements. The CIM\_NetworkPolicyRule  
269 instance shall be associated with the scoping CIM\_System through an instance of CIM\_PolicyInSystem  
270 association. The instance of the CIM\_NetworkPolicyRule shall be associated with one instance of the  
271 scoping CIM\_System.

272 A CIM\_NetworkPolicyRule instance that is applied to an instance of CIM\_ManagedElement shall be  
273 associated with the CIM\_ManagedElement instance through an instance of  
274 CIM\_PolicySetAppliesToElement association.

## 275 7.2.2 CIM\_NetworkPolicyCondition

276 The CIM\_NetworkPolicyCondition extends the CIM\_Policy class and specifies a particular condition,  
277 which causes the associated network policy to be triggered once met. Each CIM\_NetworkPolicyCondition  
278 instance shall be associated with one instance of the CIM\_NetworkPolicyRule through the instance of  
279 CIM\_PolicyConditionStructure association.

## 280 7.2.3 CIM\_NetworkPolicyAction

281 The CIM\_NetworkPolicyAction class extends the CIM\_Policy class and determines an action taken once  
282 the policy is triggered. Each CIM\_NetworkPolicyAction instance shall be associated with one instance of  
283 the CIM\_NetworkPolicyRule through the CIM\_PolicyActionStructure association instance.

## 284 7.3 Network Policy configuration

### 285 7.3.1 CIM\_NetworkPolicyRuleSettingData

286 The CIM\_NetworkPolicyRuleSettingData class extends the CIM\_SettingData class and specifies the  
287 setting data for the network policy.

288 An instance of the CIM\_NetworkPolicyRuleSettingData shall be associated to the instance of  
289 CIM\_NetworkPolicyRule through an instance of CIM\_ElementSettingsData association.

#### 290 7.3.1.1 CIM\_QoSPolicyRuleSettingData

291 The CIM\_QoSPolicyRuleSettingData class extends the CIM\_NetworkPolicyRuleSettingData class and  
292 specifies the setting data for the QoS network policy.

#### 293 7.3.1.2 CIM\_FirewallRuleSettingData

294 The CIM\_FirewallRuleSettingData class extends the CIM\_NetworkPolicyRuleSettingData class and  
295 specifies the setting data for the QoS network policy.

#### 296 7.3.1.3 CIM\_LoadBalancingRuleSettingData

297 The CIM\_LoadBalancingRuleSettingData class extends the CIM\_NetworkPolicyRuleSettingData class  
298 and specifies the setting data for the load balancing network policy.

### 299 7.3.2 CIM\_NetworkPolicyActionSettingData

300 CIM\_NetworkPolicyActionSettingData class extends the CIM\_NetworkPolicySettingData and specifies the  
301 setting data for the Network Policy Action.

302 An instance of the CIM\_NetworkPolicyActionSettingData shall be associated to the instance of  
303 CIM\_NetworkPolicyAction through an instance of CIM\_SettingsDefineState association.

#### 304 7.3.2.1 CIM\_LoadBalancingActionSettingData

305 CIM\_LoadBalancingActionSettingData class extends the CIM\_NetworkPolicyActionSettingData and  
306 specifies the setting data for the load balancing network policy action.

## 307 8 Methods

308 This clause details the requirements for supporting intrinsic operations and extrinsic methods for the CIM  
309 elements defined by this profile.

## 310 8.1 Extrinsic methods

311 If synchronous execution of a method succeeds, the implementation shall set a return value of  
312 0 (Completed with No Error).

313 If synchronous execution of a method fails, the implementation shall set a return value of 2 (Failed) or a  
314 more specific return code as specified with the respective method.

315 If a method is executed as an asynchronous task, the implementation shall perform all of the following  
316 actions:

- 317 • Create a Job object according to DSP1103 Job Control Profile.
- 318 • Set a return value of 4096 (Job Started).

### 319 8.1.1 Job parameter

320 The implementation shall set the value of the Job parameter as a result of an asynchronous execution of  
321 a method of the CIM\_NetworkPolicyService as follows:

- 322 • If the method execution is performed synchronously, the implementation shall set the value to  
323 NULL.
- 324 • If the method execution is performed asynchronously, the implementation shall set the value to  
325 refer to the instance of the CIM\_ConcreteJob class that represents the asynchronous task.

### 326 8.1.2 CIM\_NetworkPolicyService.CreatePolicyRule()

327 The implementation of the CreatePolicyRules( ) method is required; the provisions in this subclause apply  
328 in addition to behavior applicable to all extrinsic methods as specified in **Error! Reference source not  
329 found.**

330 This method creates instances of CIM\_NetworkPolicyRule class, CIM\_NetworkPolicyCondition,  
331 CIM\_NetworkPolicyAction, CIM\_NetworkPolicyRuleSettingData, and  
332 CIM\_NetworkPolicyActionSettingData classes and all mandatory associations between these instances  
333 as described in clause 7.

334 Profile implementation should make sure that the types of the policy actions, network policy rule setting  
335 data, and network policy action setting data match to represent a configuration of the particular policy  
336 type, for example load balancing or firewall policy.

337 **Input:** NetworkPolicyAction[], ActionsOrder[] (uint16) (optional), NetworkPolicyCondition[],  
338 ConditionGroupNumber[] (uint16), NetworkPolicyRuleSettingData[], NetworkPolicyActionSettingData[],  
339 SequenceNumber, NetworkPolicyRule, REF ParentNetworkPolicyRule (optional), REF  
340 ManagedElement[] (optional)

341 **Output:** REF to NetworkPolicyRule

### 342 8.1.3 CIM\_NetworkPolicyService.DeletePolicyRules( )

343 The implementation of the DeletePolicyRules( ) method is required; the provisions in this subclause apply  
344 in addition to behavior applicable to all extrinsic methods as specified in 8.1.

345 This method removes all associated instances of CIM\_NetworkPolicyAction,  
346 CIM\_NetworkPolicyCondition, CIM\_NetworkPolicyRuleSettingData, and  
347 CIM\_NetworkPolicyActionSettingData that are only associated with the rule specified in this method input  
348 parameter.

349 The requested CIM\_NetworkPolicyRule instances shall be associated with this network policy service in  
350 order for them to be removed

351 **Input:** REF NetworkPolicyRule[]

### 352 **8.1.4 CIM\_NetworkPolicyService.ApplyPolicyRule( ) (optional)**

353 The implementation of the ApplyPolicyRules( ) method is optional; the provisions in this subclause apply  
354 in addition to behavior applicable to all extrinsic methods as specified in 8.1.

355 Applies the Network Policy Rule to the specified instances of the CIM\_ManagedElement. This method  
356 creates the instances of the CIM\_PolicySetAppliesToElement association between the specified instance  
357 of the CIM\_NetworkPolicyRule and the instances of CIM\_ManagedElement subclasses, which references  
358 are supplied.

359 **Input:** REF NetworkPolicyRule, REF ManagedElement[]

### 360 **8.1.5 CIM\_NetworkPolicyService.ReleasePolicyRule( ) (optional)**

361 The implementation of the ReleasePolicyRules( ) method is optional; the provisions in this subclause  
362 apply in addition to behavior applicable to all extrinsic methods as specified in 8.1.

363 Removes the Network Policy Rule from the ManagedElement instances it was applied before. This  
364 method deletes the instances of the CIM\_PolicySetAppliesToElement association between the specified  
365 instance of the CIM\_NetworkPolicyRule and the instances of CIM\_ManagedElement subclasses, which  
366 references are supplied.

367 **Input:** REF NetworkPolicyRule, REF ManagedElement[]

## 368 **8.2 Profile conventions for operations**

369 For each profile class (including associations), the implementation requirements for operations, including  
370 those in the following default list, are specified in class-specific subclauses of this clause.

371 The default list of operations is as follows:

- 372 • GetInstance
- 373 • EnumerateInstances
- 374 • EnumerateInstanceNames
- 375 • Associators
- 376 • AssociatorNames
- 377 • References
- 378 • ReferenceNames

### 379 **8.3 CIM\_NetworkPolicyService**

380 All operations in the default list in 8.1 shall be implemented as defined in [DSP0200](#).

### 381 **8.4 CIM\_NetworkPolicyServiceCapabilities**

382 All operations in the default list in 8.1 shall be implemented as defined in [DSP0200](#).

### 383 **8.5 CIM\_NetworkPolicyRule**

384 All operations in the default list in 8.1 shall be implemented as defined in [DSP0200](#).

### 385 **8.6 CIM\_NetworkPolicyCondition**

386 All operations in the default list in 8.1 shall be implemented as defined in [DSP0200](#).

387 **8.7 CIM\_NetworkPolicyAction**

388 All operations in the default list in 8.1 shall be implemented as defined in [DSP0200](#).

389 **8.8 CIM\_NetworkPolicyRuleSettingData**

390 All operations in the default list in 8.1 shall be implemented as defined in [DSP0200](#).

391 **8.9 CIM\_NetworkPolicyActionSettingData**

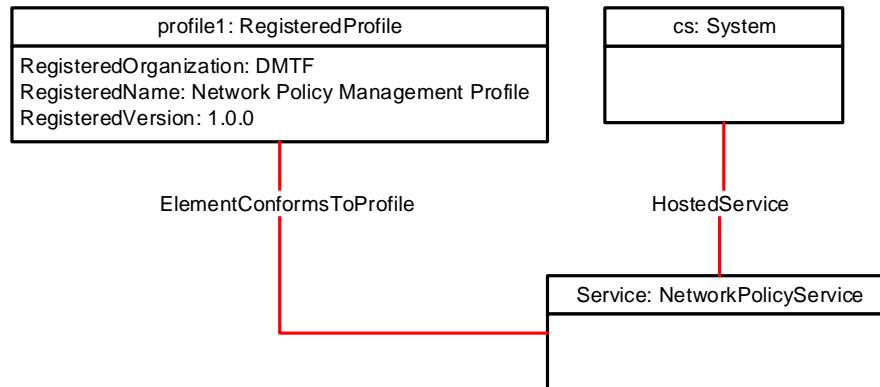
392 All operations in the default list in 8.1 shall be implemented as defined in [DSP0200](#).

## 393 9 Use cases

394 This clause contains object diagrams and use cases for the *Network Policy Management Profile*.

### 395 9.1 Profile registration

396 The object diagram in Figure 2 shows one possible method for advertising profile conformance.



397

398

Figure 2 – Registered profile

## 399 9.2 Profile extension and usage examples

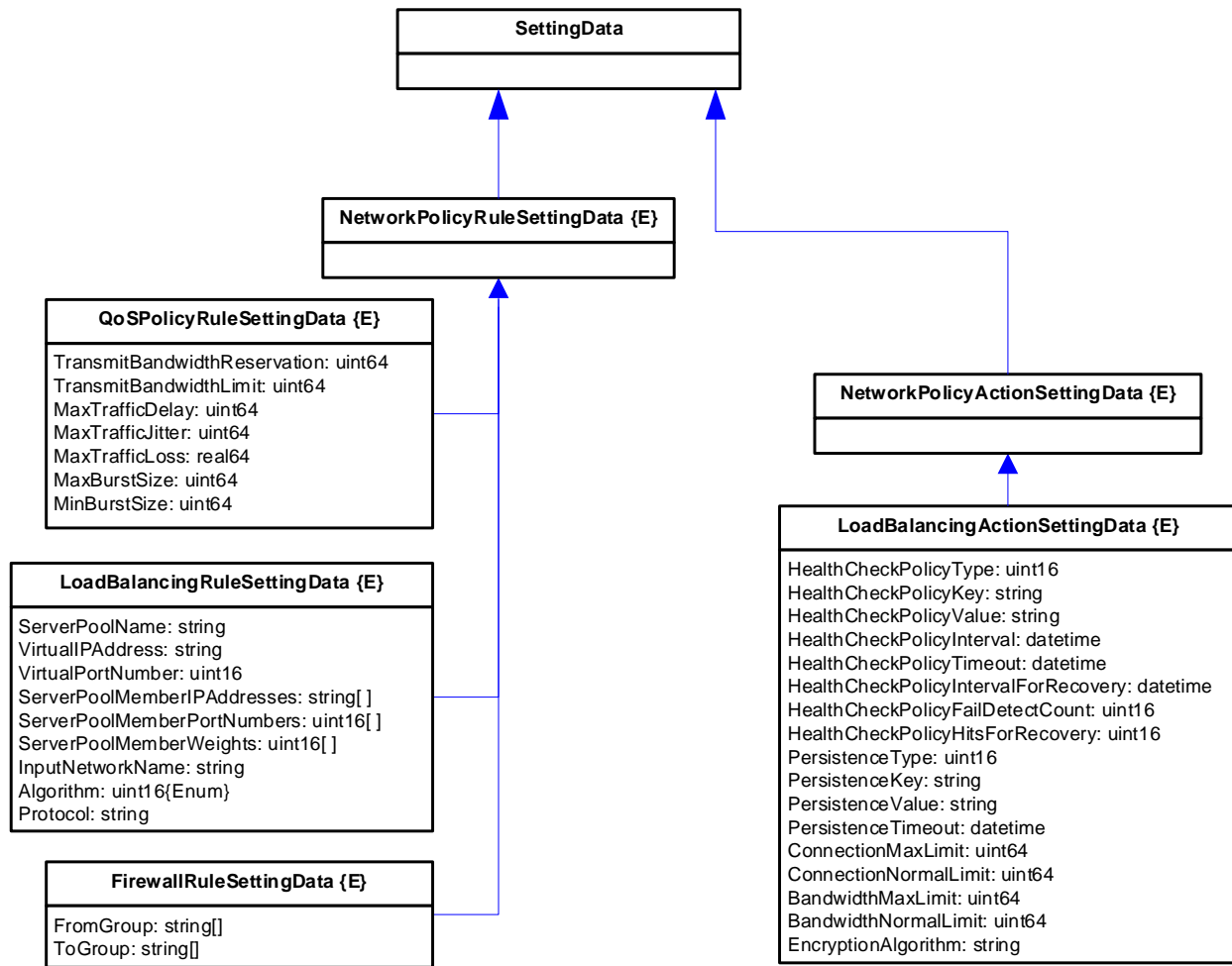
### 400 9.2.1 Extending and using the Network Policy Management Profile

401 The *Network Policy Management Profile* is a base profile that specifies the CIM Schema and use cases  
 402 associated with the general and common aspects of Network Policy Management. This profile is intended  
 403 to be extended to represent various kinds of network policies, such as Load Balancing, Firewall, QoS,  
 404 Routing, etc.

405 The extension is generally performed by subclassing `CIM_NetworkPolicyRuleSettingData` to represent  
 406 the settings specific to the particular type of Network Policy, for example Load Balancer by introducing  
 407 `CIM_LoadBalancingRuleSettingData` and by subclassing `CIM_NetworkPolicyActionSettingData` if the  
 408 particular type of actions require specific configuration parameters, for example by introducing  
 409 `CIM_LoadBalancingActionSettingData` to specify the action settings for the load balancing actions.

410 The class diagram on Figure 3 represents the Policy Rule and Action extensions for the Load Balancer,  
 411 Firewall, and QoS specific Network Policies.





412

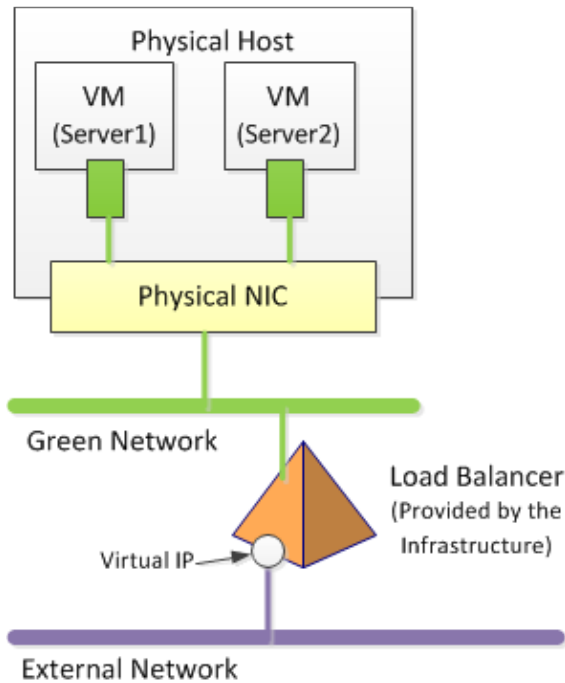
413

Figure 3 – Network Management Policy extensions

414 **9.2.2 Load Balancer configuration**

415 Figure 4 illustrates one of the possible load balancing scenarios. In this case the Load Balancer needs to  
 416 redirect the IP traffic, coming from the external network to one of the Virtual Machines (VM), hosted by the  
 417 same Physical Host. The VMs are connected to the internal network and their IP addresses can be  
 418 resolved via NAT.

419 The IP traffic that needs to be load balanced is coming to port 80 and the load balancing needs to be  
 420 performed using Round Robin algorithm, where each VM can be assigned its own weight. In this example  
 421 VM1 has been assigned weight equal to 6 and VM2 has been assigned weight equal to 3.

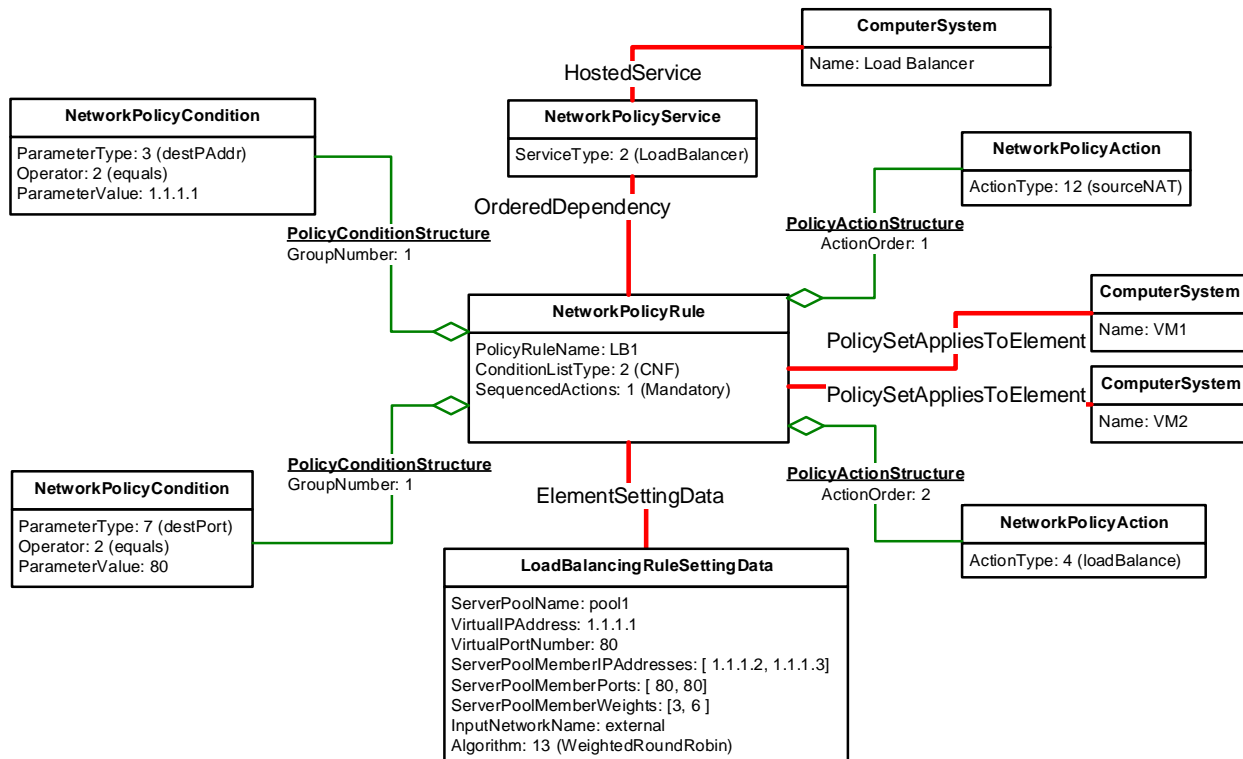


Parameter	Configuration Value
Algorithm	RoundRobin
Virtual Port	80
VM1 Destination Port	80
VM2 Destination Port	80
VM1 weight	6
VM2 weight	3
NetworkPolicyActions	Source NAT Load balance

422

423

Figure 4 – Example load balancing scenario



424

425

Figure 5 – Example load balancing configuration using Network Policy

426

427

Figure 5 shows how such load balancing configuration can be modeled using Network Policy model. As per Network Policy model extension principles described earlier in clause 9.2.1, we are creating instances

428 of CIM\_LoadBalancingRuleSettingData classes to capture the specific configuration parameters of the  
 429 load balancer, such as VM weights, load balancing algorithm, and VM destination ports.

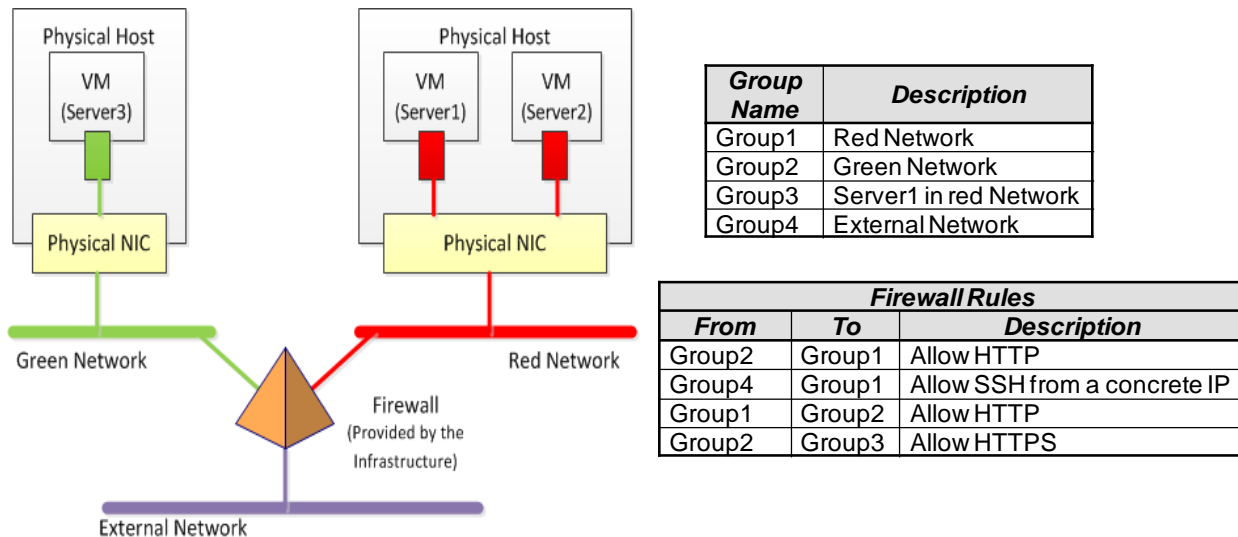
430 In the case of the Round Robin load balancing algorithm, there is no need to create the additional  
 431 instances of the CIM\_LoadBalancingActionSettingData class.

432 The instances of CIM\_NetworkPolicyCondition classes capture some of the configuration parameters,  
 433 notably the destination ports for incoming IP traffic.

434 **9.2.3 Firewall configuration**

435 Another example of extending and using the Network Policy Management profile is configuration of  
 436 firewalls. Consider the example firewall configuration scenario outlined on the Figure 6. Here we are  
 437 configuring four network groups with the different rules permitting or denying traffic flow between them  
 438 and the external network.

439 Each group can contain individual or several networks (e.g., Red Network or Green Network) or can be a  
 440 collection of virtual machines or servers in the particular network (e.g., Server 1 in Red Network).



441

442 **Figure 6 – Example firewall configuration scenario**

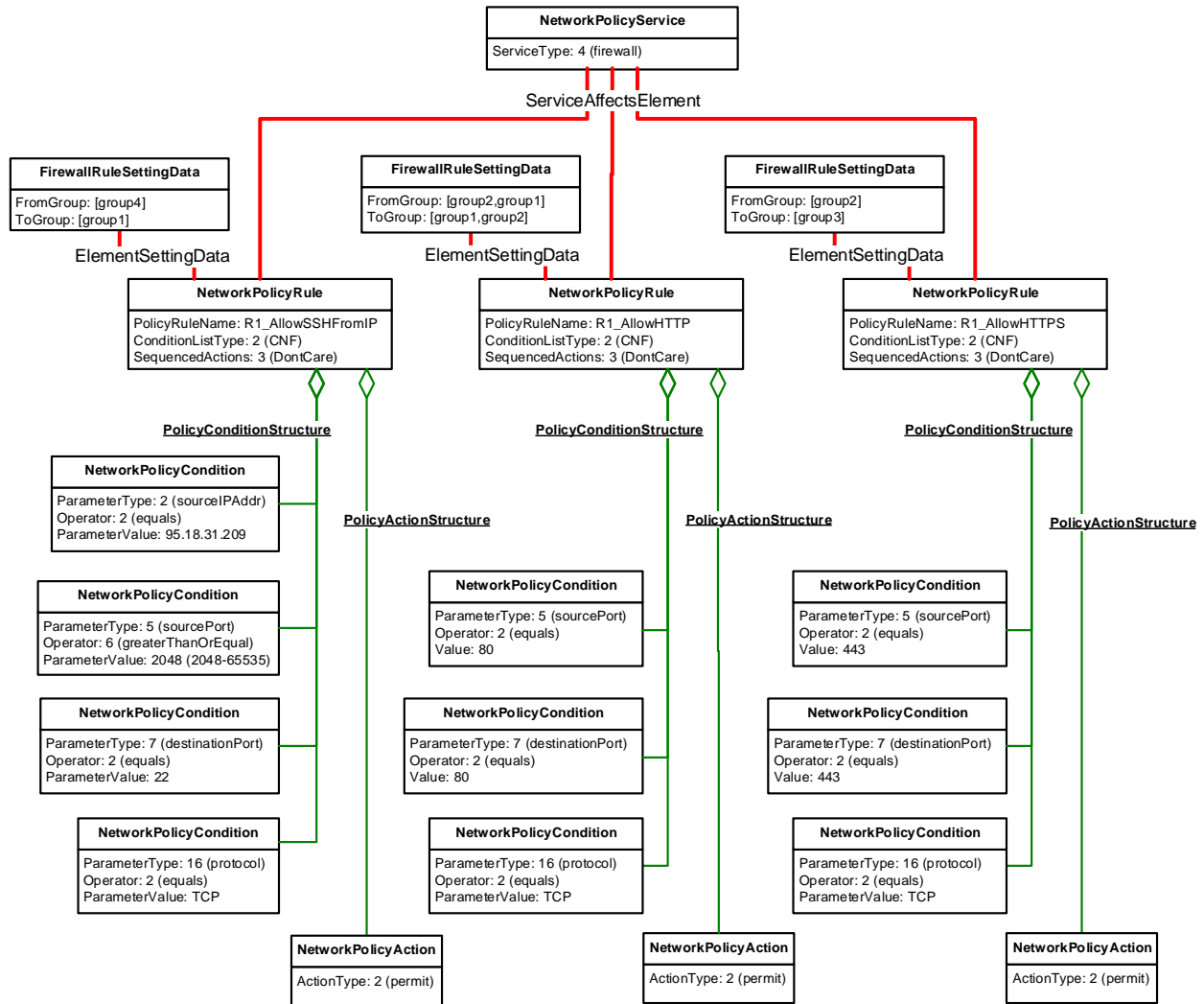
443 The Firewall Rules table in Figure 6 describes the traffic flow rules between various groups used in this  
 444 example.

445 Figure 7 illustrates how the firewall rules described earlier can be modeled using Network Policy model.

446 In this case we are using instances of CIM\_FirewallRuleSettingData to specify some of the firewall  
 447 configuration data, such as the names of the Groups for which the particular policy instance is configured.

448 The instances of CIM\_NetworkPolicyCondition class specify the traffic characteristics (e.g., source IP  
 449 address and port number) that are used to trigger the particular policy (represented as an instance of  
 450 CIM\_NetworkPolicyRule), which controls the traffic flow in the system.

451 The only type of action used by this model is the Permit action (represented via the instance of  
 452 CIM\_NetworkPolicyAction class with the actionType property set to 'permit'), which indicates that the  
 453 particular policy permits the flow of traffic between the groups once the matching conditions trigger the  
 454 execution of the particular policy instance.



455

456

Figure 7 – Example firewall configuration scenario using Network Policy

457 **9.2.4 QoS Service configuration**

458 Figure 8 shows the example Quality of Service (QoS) configurations. Here we have three classes of  
 459 service – Gold, Bronze, and Silver, each with different traffic characteristics, such as maximum allowed  
 460 bandwidth, maximum delay, jitter, and others.

461 These QoS characteristics can be applied to the traffic, generated by the particular applications, for  
 462 example between SIP clients and server, MySQL applications deployed in Tomcat, etc.

463 The purpose of the QoS policies is to control the use of the network resources according to selected class  
 464 of service.

- QoS Scenario.
    - BandwidthReservation: 2 Mbps
    - BandwidthLimit: 5 Mbps
    - MaxTrafficDelay: 150 ms
    - MaxTrafficJitter: 50 ms
    - RequestedMaxIPTrafficLoss: 0.05%
    - Rule: Match SIP Application
  
  - BandwidthReservation: 1 Mbps
  - BandwidthLimit: 2 Mbps
  - MaxTrafficDelay: 50 ms
  - RequestedMaxIPTrafficLoss: 0.02%
  - Rule: Match MySQL Application
- 
- BandwidthReservation: 5 Mbps
  - BandwidthLimit: 10 Mbps
  - MaxTrafficDelay: 150 ms
  - RequestedMaxIPTrafficLoss: 0.02%
  - Rule: Match TomCat Application traffic on port 8080

GOLD

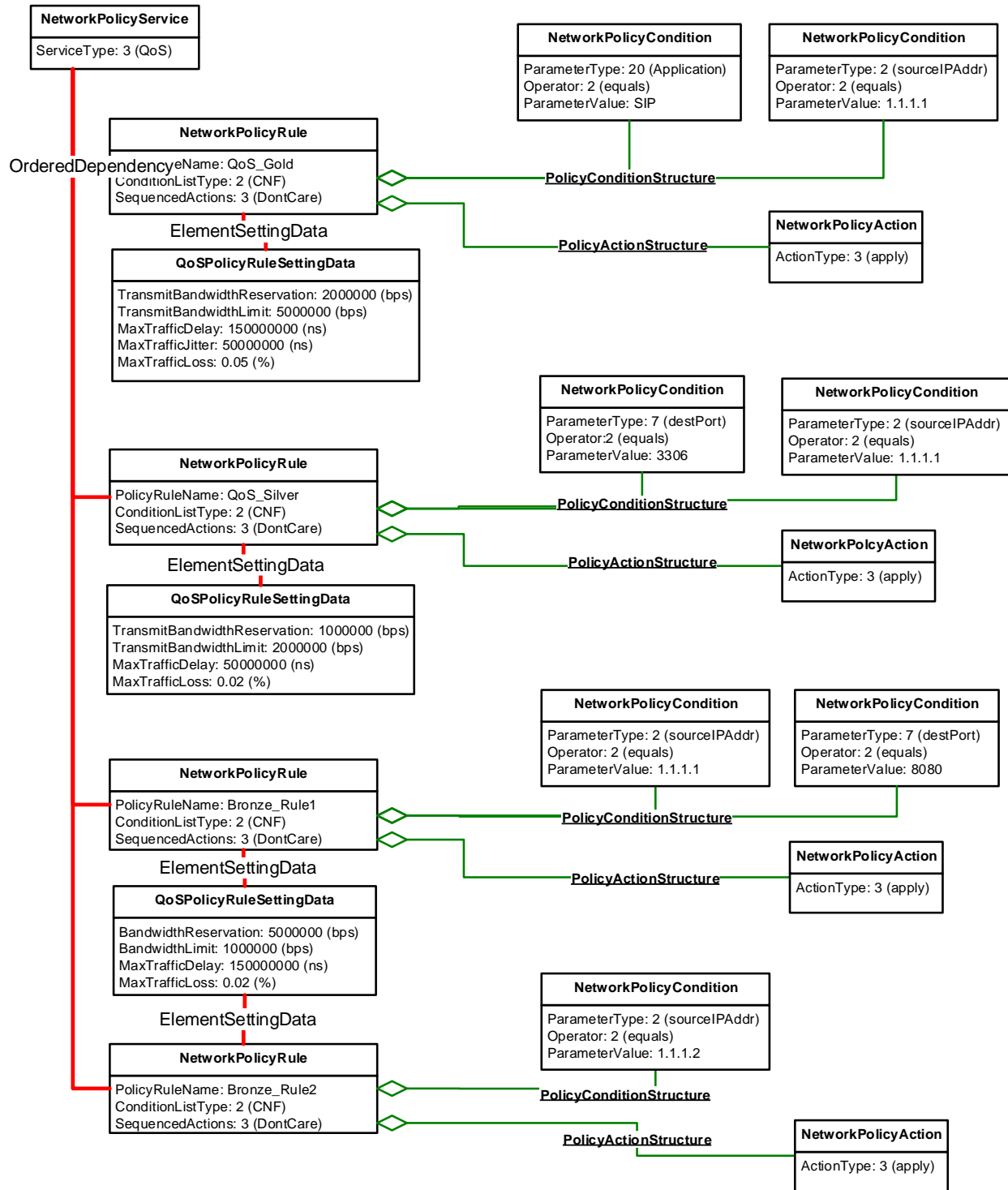
SILVER

BRONZE

465

466

Figure 8 – Example QoS Service configuration



467

468

Figure 9 - Example QoS Service configuration

469

Figure 9 illustrates how various QoS policies can be configured using Network Policy Management Profile.

470

471 **10 CIM Elements**

472 Table 2 shows the instances of CIM Elements for this profile. Instances of the CIM Elements shall be  
 473 implemented as described in Table 2. Clauses 7 (“Implementation”) and 8 (“Methods”) may impose  
 474 additional requirements on these elements.

475 **Table 2 – CIM Elements: Network Policy Management Profile**

Element Name	Requirement	Description
<b>Classes</b>		
CIM_NetworkPolicyService	Required	See clauses 7.1.1
CIM_NetworkPolicyRule	Optional	See clauses 7.2.1
CIM_NetworkPolicyCondition	Optional	See clauses 7.2.2
CIM_NetworkPolicyAction	Optional	See clauses 7.2.3
CIM_NetworkPolicyRuleSettingData	Optional	See clauses 7.3.1
CIM_NetworkPolicyActionSettingData	Optional	See clauses 7.3.2
CIM_NetworkPolicyServiceCapabilities	Optional	See clauses 7.1.2
Association and endpoints		
<b>Indications</b>		
None defined in this profile		

476

477  
478  
479  
480

## ANNEX A (informative)

### Change log

Version	Date	Description
1.0.0	2021-02-26	

481