

Dynamic Capability for BGP-4

[draft-ietf-idr-dynamic-cap-00.txt](#)

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## **2. Abstract**

This document defines a new BGP capability termed "Dynamic Capability", which would allow the dynamic update of capabilities over an established BGP session. This capability would facilitate non-disruptive capability changes by BGP speakers.

### **3. Introduction**

Currently BGP capabilities [[BGP-CAP](#)] are only advertised in the OPEN message during the session initialization. In order to enable a new capability or remove an existing capability (such as an Address Family support [[BGP-MP](#)]), an established session needs to be reset, which may disrupt other services running over the session.

This document defines a new BGP capability termed "Dynamic Capability", which would allow the dynamic update of capabilities over an established BGP session. This capability would facilitate non-disruptive capability changes by BGP speakers.

### **4. Dynamic Capability**

The Dynamic Capability is a new BGP capability [[BGP-CAP](#)]. The Capability code for this Capability is specified in the "IANA Considerations" section of this document. The Capability Length field of this Capability is set to 0.

By advertising the Dynamic Capability to a peer in the OPEN, a BGP speaker conveys to the peer that the speaker is capable of receiving and properly handling the CAPABILITY message (as defined in the next Section) from the peer after the BGP session has been established.

### **5. Capability Message**

The CAPABILITY Message is a new BGP message type with type code <TBD>. In addition to the fixed-size BGP header [[BGP-4](#)], the CAPABILITY message contains one or more of the following tuples:

```
+-----+
| Action (1 octet)          |
+-----+
| Capability Code (1 octet)  |
+-----+
| Capability Length (1 octet)|
+-----+
| Capability Value (variable)|
+-----+
```

The value of the Action field is 0 for advertising a capability, and 1 for removing a capability.



The triple <Capability Code, Capability Length, Capability Value> is the same as defined in [[BGP-CAP](#)], and it specifies a capability for which the "Action" shall be applied.

## 6. Operation

A BGP speaker that is willing to receive the CAPABILITY message from its peer should advertise the Dynamic Capability to the peer using BGP Capabilities advertisement [[BGP-CAP](#)].

A BGP speaker may send a CAPABILITY message to its peer only if it has received the Dynamic Capability from its peer.

The Dynamic Capability itself can not be revised dynamically via a CAPABILITY message. The lifetime of the Dynamic Capability is the duration of the BGP session in which the capability is advertised.

Upon receiving a CAPABILITY message from its peer, the BGP speaker shall update the capabilities previously received from that peer based on the "Action" in the message, and then function in accordance with the revised capabilities for the peer. Any unrecognized capabilities in the message should be ignored.

It is noted that the dynamic capability update may not be feasible and should be disallowed for some capabilities. One example is the four-byte AS number capability [[BGP-4BYTE-AS](#)] as its dynamic update could introduce ambiguity in parsing the UPDATE messages.

## 7. IANA Considerations

This document uses a BGP Capability code to indicate that a BGP speaker supports the Dynamic Capability. The Capability code needs to be assigned by IANA per [RFC 2842](#). Capability Code values 1 through 63 are to be assigned by IANA using the "IETF Consensus" policy defined in [RFC2434](#).



## **8. Intellectual Property Considerations**

Cisco Systems may seek patent or other intellectual property protection for some of all of the technologies disclosed in this document. If any standards arising from this document are or become protected by one or more patents assigned to Cisco Systems, Cisco intends to disclose those patents and license them on reasonable and non-discriminatory terms.

## **9. Security Considerations**

This extension to BGP does not change the underlying security issues.

## **10. Acknowledgments**

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## **11. References**

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## **12. Author Information**

Enke Chen  
Redback Networks, Inc.  
350 Holger Way  
San Jose, CA 95134  
e-mail: [enke@redback.com](mailto:enke@redback.com)

Srihari R. Sangli  
Procket Networks, Inc.  
1100 Cadillac Court  
Milpitas, CA 95035  
e-mail: [srihari@procket.com](mailto:srihari@procket.com)

