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Hostname Capability for BGP
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Abstract

In this document, we introduce a new BGP capability that allows the advertisemnet of a BGP speaker's hostname.

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1. Introduction

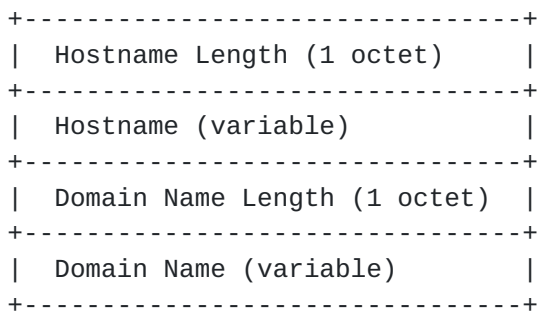
BGP is increasingly used inside the data center. Due to the sheer scale of devices involved, simplifying troubleshooting BGP would be very useful. One simple way to ease the troubleshooting is to display the hostname of the speaker in addition to the speaker's IP address. This document defines a new BGP capability that allows the exchange of a speaker's FQDN.

2. Specification of Requirements

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [RFC2119].

3. FQDN Capability

The FQDN Capability is a new BGP capability [RFC5492]. The Capability Code for this capability is specified in the IANA Considerations section of this document. The Capability Length field of this capability is variable. The Capability Value field consists of the following:



Hostname Length:

The number of characters in the Hostname

Hostname:

The hostname encoded via UTF-8

Domain Name Length:

The number of characters in the Domain Name

Domain Name:

The domain name encoded via UTF-8

4. Operation

The FQDN Capability SHOULD only be used for displaying the hostname and/or domain name of a speaker in order to make troubleshooting easier. The hostname and domain name used are assumed to be extracted from the hostname and domain name set on the device. While there are other ways to potentially obtain the same information, having standard BGP show commands use the hostname makes the use of this option quite powerful.

An example of showing hostname in various displays is show below in the output of the summary of BGP peering relationships, the first being the typical display today, and the second the display when displaying hostnames is enabled:

```
 cumulus@r1$ sudo cl-bgp summary
 BGP router identifier 10.0.0.1, local AS number 10
 BGP table version 7000
 RIB entries 7999, using 937 KiB of memory
 Peers 16, using 268 KiB of memory
 Peer groups 4, using 224 bytes of memory

 Neighbor        V    AS MsgRcvd MsgSent   TblVer  InQ OutQ Up/Down  State/
PfxRcd
 10.0.0.2        4    10     103     204        0    0    0 00:01:21
1000
 10.0.0.3        4    10     103     204        0    0    0 00:01:21
1000
 10.0.0.4        4    10     203     204        0    0    0 00:01:21
2000
 20.1.1.6        4    20     403     589        0    0    0 00:01:37
1000
 20.1.1.7        4    20     403     589        0    0    0 00:01:35
1000
 40.1.1.2        4    40     403     689        0    0    0 00:01:40
1000
 40.1.1.6        4    40     403     689        0    0    0 00:01:48
1000
 40.1.1.10       4    40     403     689        0    0    0 00:01:40
1000

 Total number of neighbors 8
 cumulus@r1$
```

```
    cumulus@r1$ sudo cl-bgp summary
    BGP router identifier 10.0.0.1, local AS number 10
    BGP table version 7000
    RIB entries 7999, using 937 KiB of memory
    Peers 16, using 268 KiB of memory
    Peer groups 4, using 224 bytes of memory

    Neighbor        V    AS MsgRcvd MsgSent   TblVer  InQ OutQ Up/Down  State/
PfxRcd
    r2(10.0.0.2)    4    10     104     205        0    0    0 00:02:05
1000
    r3(10.0.0.3)    4    10     104     205        0    0    0 00:02:05
1000
    r4(10.0.0.4)    4    10     204     205        0    0    0 00:02:05
2000
    r6(20.1.1.6)    4    20     404     590        0    0    0 00:02:21
1000
    r7(20.1.1.7)    4    20     404     590        0    0    0 00:02:19
1000
    r8(40.1.1.2)    4    40     404     690        0    0    0 00:02:24
1000
    r9(40.1.1.6)    4    40     404     690        0    0    0 00:02:32
1000
    r10(40.1.1.10)  4    40     404     690        0    0    0 00:02:24
1000

    Total number of neighbors 8
    cumulus@r1$
```

5. IANA Considerations

IANA has assigned capability number 73 for the FQDN Capability described in this document. This registration is in the BGP Capability Codes registry.

6. Security Considerations

This document introduces no new security concerns to BGP or other specifications referenced in this document.

7. References

7.1. Normative References

[RFC5492] Scudder, J. and R. Chandra, "Capabilities Advertisement with BGP-4", RFC 5492, DOI 10.17487/RFC5492, February 2009, <http://www.rfc-editor.org/info/rfc5492>.

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate

Requirement Levels", BCP 14, RFC 2119,
DOI 10.17487/RFC2119, March 1997,
<http://www.rfc-editor.org/info/rfc2119>.

7.2. Implementation References

[quagga] Dutt, D., "Quagga - BGP FQDN Capability", January 2016, <https://github.com/CumulusNetworks/quagga/commit/45d4b165b9d01c0e98082e7d1e90a3b1a60b1085>.

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