BGP系统性能测试文档

一、关键点描述

BGP系统下载处理入库UTC时间每日零点的BGP路由rib数据，以及之后每小时的路由更新update数据。由于每日的数据总量有6G左右，并且是MRT格式的二进制文件，处理为文本格式后数据量更大。因此BGP系统处理数据的性能是本系统的关键指标，本文档描述了系统性能测试相关方法和结论。

二、性能测试环境

|  |  |
| --- | --- |
| 服务器型号 | 曙光I620-T20 |
| 操作系统 | ubuntu-16.04.2-server-amd64 |
| 内存 | 64G |
| CPU | 12 Intel(R) Xeon(R)  CPU E5-2603 v3 @ 1.60GHz |
| 硬盘 | 4T |

三、预期性能概述

BGP系统预期达到三小时监控周期，所以预期要在三小时内处理完三小时的数据量。

四、测试方法概述

本次测试包含11天的数据，从2018年11月15日到2018年11月25日。

测试分rib数据和update，rib数据较大，且只处理UTC时间零点的数据，之后处理较小update数据即可实现全部路由数据的获取。

rib测试时分别记录9个线程每个线程所用时间，最后单个线程最大时间为当天rib所用的实际时间。

update数据测试时取当天某一小时内的数据，记录所用时间。

五、测试结果

下表为rib数据测试结果，表项中日期为2018年11月15日到2018年11月25日，有两台服务器处理数据，分别记录两台服务器的处理时间。线程编号为多线程处理时的编号，运行时间为每个线程运行所用的时间，最大时间为多线程实际所用时间。

|  |  |  |  |
| --- | --- | --- | --- |
| 日期 | 线程编号 | 运行时间（s） | 最大时间（s） |
| 20181115 | server1-rib1 | 998.3 | 1814.48 |
| server1-rib2 | 662.29 |
| server1-rib3 | 309.76 |
| server1-rib4 | 1013.95 |
| server1-rib5 | 1075.98 |
| server1-rib6 | 1140.17 |
| server1-rib7 | 343.37 |
| server1-rib8 | 508.36 |
| server2-rib1 | 1514.58 |
| server2-rib2 | 1692.47 |
| server2-rib3 | 359.91 |
| server2-rib4 | 1814.48 |
| server2-rib5 | 951.11 |
| server2-rib6 | 1111.35 |
| server2-rib7 | 1629.63 |
| server2-rib8 | 343.8 |
| 20181116 | server1-rib1 | 1003.05 | 1889.47 |
| server1-rib2 | 680.1 |
| server1-rib3 | 321.06 |
| server1-rib4 | 986.38 |
| server1-rib5 | 1086.52 |
| server1-rib6 | 1086.21 |
| server1-rib7 | 364.27 |
| server1-rib8 | 539.24 |
| server2-rib1 | 1453.04 |
| server2-rib2 | 1736.24 |
| server2-rib3 | 361.49 |
| server2-rib4 | 1889.47 |
| server2-rib5 | 941.97 |
| server2-rib6 | 1149.24 |
| server2-rib7 | 1618.8 |
| server2-rib8 | 347.29 |
| 20181117 | server1-rib1 | 1019.72 | 1850.67 |
| server1-rib2 | 673.72 |
| server1-rib3 | 312.32 |
| server1-rib4 | 1018.77 |
| server1-rib5 | 1080.74 |
| server1-rib6 | 1053.42 |
| server1-rib7 | 355.78 |
| server1-rib8 | 513.45 |
| server2-rib1 | 1475.53 |
| server2-rib2 | 1714.57 |
| server2-rib3 | 359.91 |
| server2-rib4 | 1850.67 |
| server2-rib5 | 944.71 |
| server2-rib6 | 1105.97 |
| server2-rib7 | 1587.22 |
| server2-rib8 | 344.53 |
| 20181118 | server1-rib1 | 997.66 | 1881.56 |
| server1-rib2 | 678.86 |
| server1-rib3 | 312.5 |
| server1-rib4 | 1024.24 |
| server1-rib5 | 1077.86 |
| server1-rib6 | 1075.5 |
| server1-rib7 | 341.14 |
| server1-rib8 | 536 |
| server2-rib1 | 1471.98 |
| server2-rib2 | 1670.8 |
| server2-rib3 | 364.58 |
| server2-rib4 | 1881.56 |
| server2-rib5 | 942.36 |
| server2-rib6 | 1120.05 |
| server2-rib7 | 1522.09 |
| server2-rib8 | 356.67 |
| 20181119 | server1-rib1 | 1022.78 | 1805.95 |
| server1-rib2 | 665.72 |
| server1-rib3 | 322 |
| server1-rib4 | 964.58 |
| server1-rib5 | 1086.03 |
| server1-rib6 | 1004.48 |
| server1-rib7 | 348.43 |
| server1-rib8 | 535.89 |
| server2-rib1 | 1481.19 |
| server2-rib2 | 1718.84 |
| server2-rib3 | 358.34 |
| server2-rib4 | 1805.95 |
| server2-rib5 | 953.05 |
| server2-rib6 | 1137.75 |
| server2-rib7 | 1512.93 |
| server2-rib8 | 357.48 |
| 20181120 | server1-rib1 | 1020.87 | 1866.93 |
| server1-rib2 | 672.65 |
| server1-rib3 | 312.43 |
| server1-rib4 | 1014.75 |
| server1-rib5 | 1047.79 |
| server1-rib6 | 1198.81 |
| server1-rib7 | 358.92 |
| server1-rib8 | 477.27 |
| server2-rib1 | 1474.13 |
| server2-rib2 | 1676.23 |
| server2-rib3 | 360.39 |
| server2-rib4 | 1866.93 |
| server2-rib5 | 941.67 |
| server2-rib6 | 1155.6 |
| server2-rib7 | 1608.45 |
| server2-rib8 | 351.59 |
| 20181121 | server1-rib1 | 1075.25 | 1825.78 |
| server1-rib2 | 677.12 |
| server1-rib3 | 311.5 |
| server1-rib4 | 991.97 |
| server1-rib5 | 1109.07 |
| server1-rib6 | 1214.05 |
| server1-rib7 | 341.23 |
| server1-rib8 | 538.74 |
| server2-rib1 | 1494.53 |
| server2-rib2 | 1665.58 |
| server2-rib3 | 359.34 |
| server2-rib4 | 1825.78 |
| server2-rib5 | 922.17 |
| server2-rib6 | 1149.29 |
| server2-rib7 | 1590.08 |
| server2-rib8 | 353.02 |
| 20181122 | server1-rib1 | 1021.97 | 1867.1 |
| server1-rib2 | 693.61 |
| server1-rib3 | 312.74 |
| server1-rib4 | 1039.38 |
| server1-rib5 | 1095.45 |
| server1-rib6 | 1158.67 |
| server1-rib7 | 359.27 |
| server1-rib8 | 495.63 |
| server2-rib1 | 1481.12 |
| server2-rib2 | 1685.93 |
| server2-rib3 | 359.75 |
| server2-rib4 | 1867.1 |
| server2-rib5 | 935.73 |
| server2-rib6 | 1198.59 |
| server2-rib7 | 1567.13 |
| server2-rib8 | 357.66 |
| 20181123 | server1-rib1 | 984.09 | 1943.21 |
| server1-rib2 | 707.02 |
| server1-rib3 | 323.89 |
| server1-rib4 | 972.59 |
| server1-rib5 | 1131.61 |
| server1-rib6 | 1179.24 |
| server1-rib7 | 348.61 |
| server1-rib8 | 532.94 |
| server2-rib1 | 1567.41 |
| server2-rib2 | 1721.8 |
| server2-rib3 | 361.59 |
| server2-rib4 | 1943.21 |
| server2-rib5 | 970.93 |
| server2-rib6 | 1220 |
| server2-rib7 | 1508.93 |
| server2-rib8 | 355.78 |
| 20181124 | server1-rib1 | 1006.76 | 1843.92 |
| server1-rib2 | 660.16 |
| server1-rib3 | 312.77 |
| server1-rib4 | 997.64 |
| server1-rib5 | 1092 |
| server1-rib6 | 1140.25 |
| server1-rib7 | 344.13 |
| server1-rib8 | 535.65 |
| server2-rib1 | 1523.3 |
| server2-rib2 | 1725.81 |
| server2-rib3 | 358.02 |
| server2-rib4 | 1843.92 |
| server2-rib5 | 942.69 |
| server2-rib6 | 1151.22 |
| server2-rib7 | 1588.66 |
| server2-rib8 | 355.83 |
| 20181125 | server1-rib1 | 987.27 | 1899.18 |
| server1-rib2 | 717.22 |
| server1-rib3 | 310.08 |
| server1-rib4 | 1015.93 |
| server1-rib5 | 1088.72 |
| server1-rib6 | 1137.32 |
| server1-rib7 | 357.7 |
| server1-rib8 | 478.91 |
| server2-rib1 | 1514.41 |
| server2-rib2 | 1645.86 |
| server2-rib3 | 366.64 |
| server2-rib4 | 1899.18 |
| server2-rib5 | 926.3 |
| server2-rib6 | 1199.49 |
| server2-rib7 | 1580.83 |
| server2-rib8 | 359.03 |

下表为update数据测试结果，表项中日期为2018年11月15日到2018年11月25日，运行时间为程序运行所需时间。

|  |  |
| --- | --- |
| 日期 | 运行时间（s） |
| 20181115 | 1464.26 |
| 20181116 | 1370.36 |
| 20181117 | 1632.7 |
| 20181118 | 1761.67 |
| 20181119 | 1205.56 |
| 20181120 | 1398.2 |
| 20181121 | 1271.52 |
| 20181122 | 1406.61 |
| 20181123 | 1412.12 |
| 20181124 | 1072.07 |
| 20181125 | 1157.98 |

六、测试结论

从测试结果中统计得：

11天的rib测试数据中，处理一天rib所需最短时间为1805.95s，最大时间为1943.21s，平均时间为1862.57s，均未超过1h。

11天的update测试数据中，处理一天update所需最短时间为1072.07s，最大时间为1761.67s，平均时间为1377.55s，均未超过0.5h。

rib与update的最大处理时间均未超出3h，因此本系统达到测试预期性能中的3h监控周期。