Log Visualization

Woojong Koh and Armin Samii

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Overview

- The system administrator uses log files to understand what goes on underneath.

- These log files can be tens or hundreds of megabytes, and impossible to parse without tools.

➡ How to (1) display massive log data visually and (2) spot abnormalities with little effort

Goal

- Aggregate this data into a visualization that can be easily checked by the system administrator.

- With a large enough cluster, this will require focusing the user's attention on **"interesting" parts** of the system state.

- This will require pseudo-detecting anomalies, which in turn requires a constantly-evolving model of what the "normal" state of the system is.

Data Analysis

I1008 23:23:04.868943 10210 training_slave.cc:2295] Starting job autoclust_detect on node 5: [425 430 435 440 445 450 455 460 465 470 475 480 485 490 495 500 505 510 515 520 525 530 535 540 545]
I1008 23:23:04.905982 10210 training_slave.cc:2295] Starting job autoclust_detect on node 4: [426 431 436 441 446 451 456 461 466 471 476 481 486 491 496 501 506 511 516 521 526 531 536 541 546]
I1008 23:23:04.941817 10210 training_slave.cc:2295] Starting job autoclust_detect on node 3: [427 432 437 442 447 452 457 462 467 472 477 482 487 492 497 502 507 512 517 522 527 532 537 542 547]
I1008 23:23:04.988983 10210 training_slave.cc:2295] Starting job autoclust_detect on node 2: [428 433 438 443 448 453 458 463 468 473 478 483 488 493 498 503 508 513 518 523 528 533 538 543 548]
I1008 23:23:05.026718 10210 training_slave.cc:2295] Starting job autoclust_detect on node 1: [429 434 439 444 449 454 459 464 469 474 479 484 489 494 499 504 509 514 519 524 529 534 539 544 549]
I1008 23:23:05.071660 10210 training_slave.cc:1988]
Running Command: autoclust_detect
	Number Pending: 425
	Number Completed: 125 of 10000
	Available Processors: 0 of 17
	Running Processors: 17 of 17
I1008 23:23:10.071907 10210 training_slave.cc:1988]
Running Command: autoclust_detect
	Number Pending: 425
	Number Completed: 125 of 10000
	Available Processors: 0 of 17
	Running Processors: 17 of 17
I1008 23:23:10.455950 10210 training_slave.cc:1797] Job completed on node: 6
I1008 23:23:10.456029 10210 training_slave.cc:1812] Node 6 output indices: [5 22 39 56 73 90 107 124 141 158 175 192 209 226 243 260 277 294 311 328 345 362 379 396 413]

…

Extracting Data

I1008 23:23:05.071660 10210 training_slave.cc:1988]
Running Command: autoclust_detect
    Number Pending: 425
    Number Completed: 125 of 10000
    Available Processors: 0 of 17
    Running Processors: 17 of 17

I1009 00:12:41.683965 10210 training_slave.cc:1988]
Running Command: autoclust_detect
    Number Pending: 125
    Number Completed: 9875 of 10000
    Available Processors: 10 of 17
    Running Processors: 7 of 17

Extracting Data

I1008 23:23:05.071660 10210 training_slave.cc:1988]
Running Command: autoclust_detect
    Number Pending: **425**
    Number Completed: **125** of 10000
    Available Processors: **0** of 17
    Running Processors: **17** of 17

I1009 00:12:41.683965 10210 training_slave.cc:1988]
Running Command: autoclust_detect
    Number Pending: **125**
    Number Completed: **9875** of 10000
    Available Processors: **10** of 17
    Running Processors: **7** of 17

Prev	Next
425	125
125	9875
0	10
17	7

Visualization

Visualization

1. Level of detail (zoom in and out)

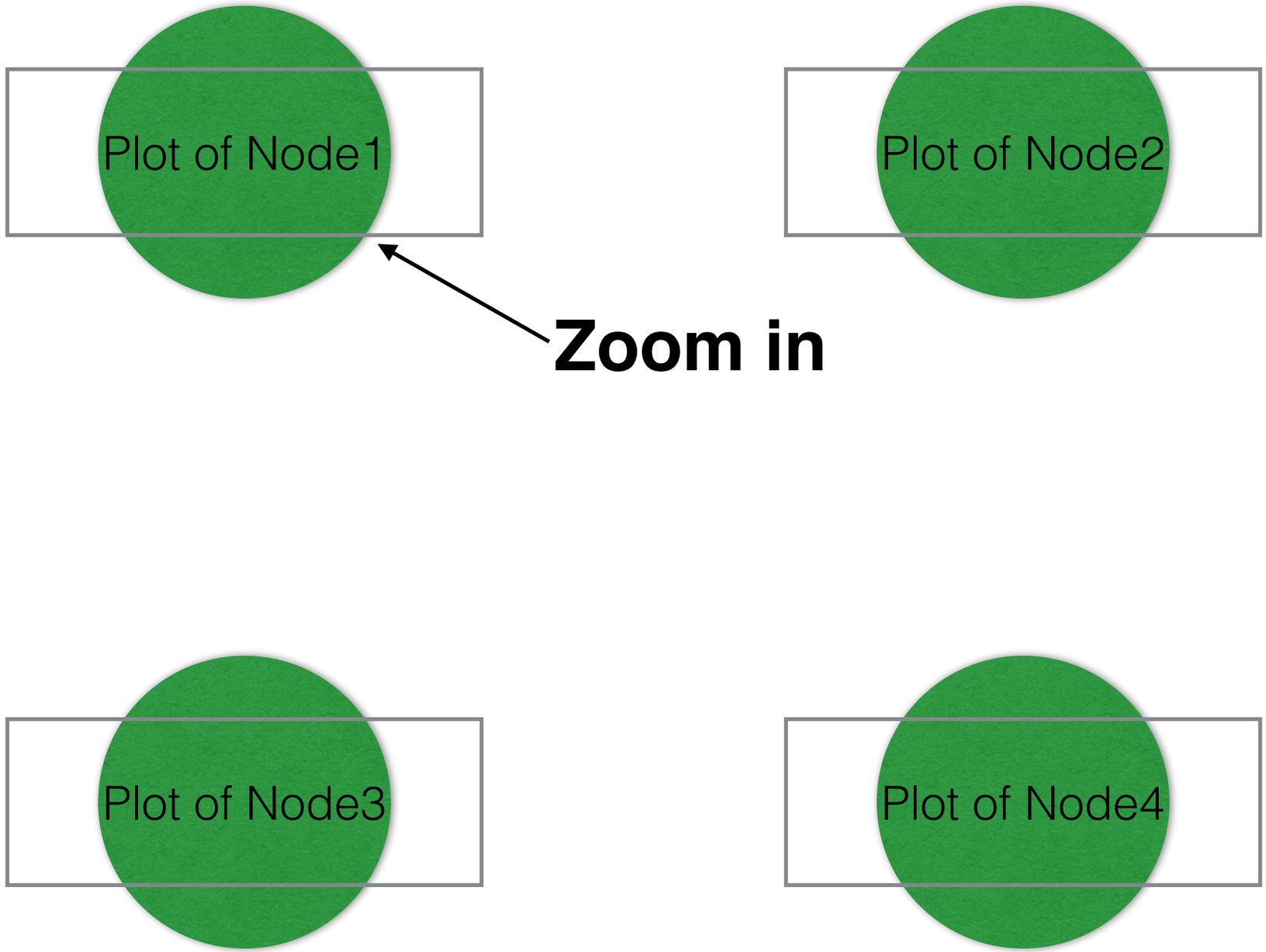
2. Reordered plots to show similar patterns

Group 2

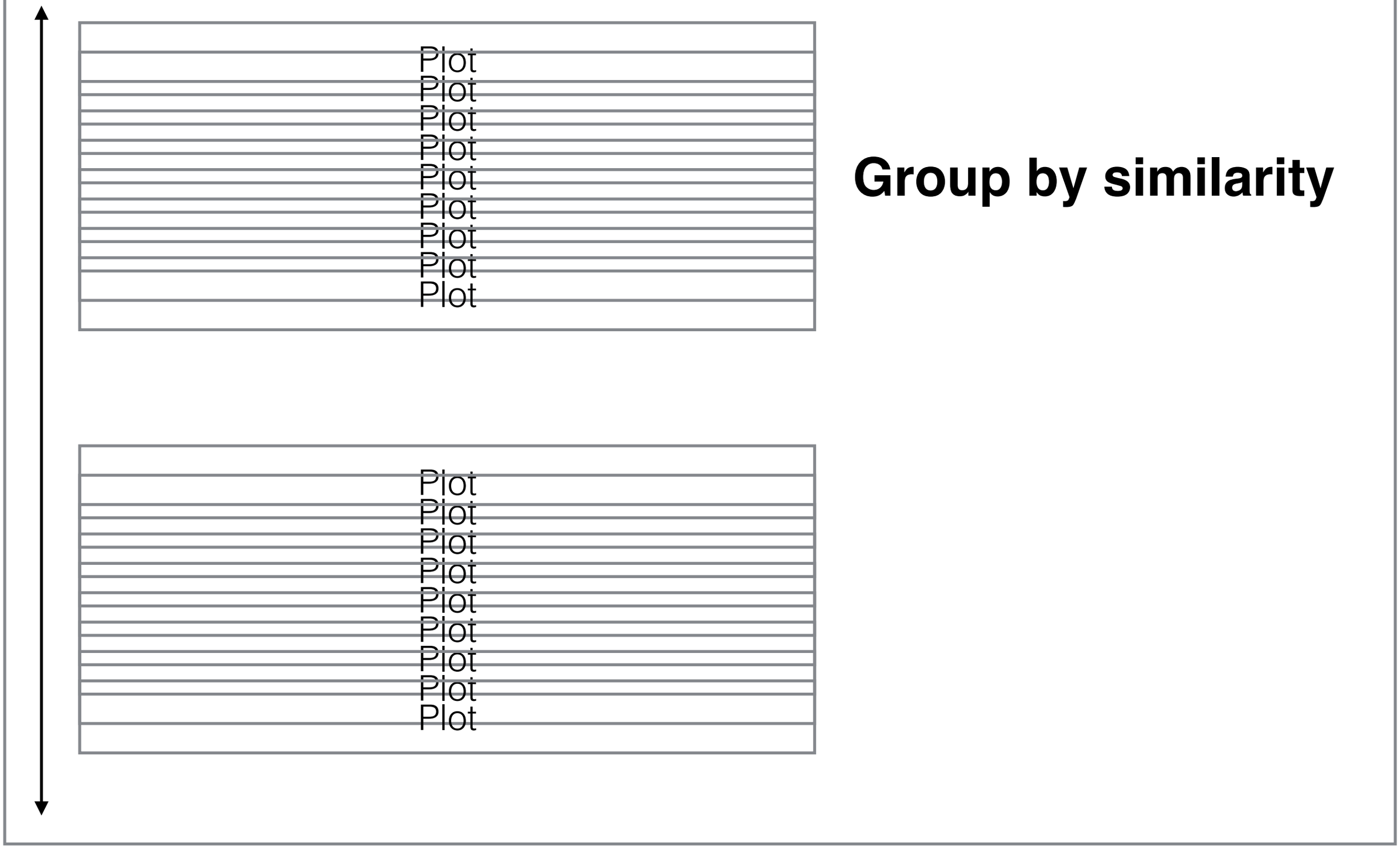
Group 1

Zoom in

Group 3


Plot of Node1
Plot of Node2
Zoom in
Plot of Node3
Plot of Node4

Screen


Plot
Plot
Plot
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Plot
Group by similarity

Log Visualization for Distributed System

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Thank you