REFERENCES

[1] L. Evans, "The large hadron collider," *New Journal of Physics*, vol. 9, no. 9, p. 335, 2007.

[2] CERN, "CERN Annual report 2019," CERN, Geneva, Tech. Rep., 2019. [Online]. Available: http://cds.cern.ch/record/2723123

[3] T. J. Berners-Lee, "Information management: A proposal," Tech. Rep., 1989.

[4] "CERN Annual report 2016," CERN, Geneva, Tech. Rep., 2017. [Online]. Available: https://cds.cern.ch/record/2270805

[5] P. Buncic, M. Krzewicki, and P. Vande Vyvre, "Technical Design Report for the Upgrade of the Online-Offline Computing System," Tech. Rep., 2015. [Online]. Available: https://cds.cern.ch/record/2011297

[6] A. Grigoras, C. Grigoras, M. Pedreira, P. Saiz, and S. Schreiner, "Jalien–a new interface between the alien jobs and the central services," in *Journal of Physics: Conference Series*, vol. 523, no. 1. IOP Publishing, 2014, p. 012010.

[7] B. Jacob, M. Brown, K. Fukui, N. Trivedi *et al.*, "Introduction to grid computing," *IBM redbooks*, pp. 3–6, 2005.

[8] I. Foster, C. Kesselman, and S. Tuecke, "The anatomy of the grid: Enabling scalable virtual organizations," *The International Journal of High Performance Computing Applications*, vol. 15, no. 3, pp. 200–222, 2001.

[9] I. Foster, "What is the grid? a three point checklist," *GRID today*, vol. 1, pp. 32–36, 01 2002.

[10] A. Weerasinghe, K. Wijethunga, R. Jayasekara, I. Perera, and A. Wickramarachchi, "Resource aware task clustering for scientific workflow execution in high performance computing environments," in *2020 IEEE 22nd International Conference on High Performance Computing and Communications; IEEE 18th International Conference on Smart City; IEEE 6th International Conference on Data Science and Systems (HPCC/SmartCity/DSS)*. IEEE, 2020, pp. 255–262.

[11] J. Nabrzyski, J. M. Schopf, and J. Weglarz, "Grid resource management: state of the art and future trends," 2012.

[12] E. Elmroth and J. Tordsson, "Grid resource brokering algorithms enabling advance reservations and resource selection based on performance predictions," *Future Generation Computer Systems*, vol. 24, no. 6, pp. 585–593, 2008.

[13] S. Jang, X. Wu, V. Taylor, G. Mehta, K. Vahi, and E. Deelman, "Using performance prediction to allocate grid resources," *Texas A&M University, College Station, TX, GriPhyN Technical Report*, vol. 25, 2004.

[14] R. Brun, P. Buncic, F. Carminati, A. Morsch, F. Rademakers, and K. Safarik, "Computing in alice," *Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, vol. 502, no. 2-3, pp. 339–346, 2003.

[15] S. Fartoukh, I. Efthymiopoulos, R. Tomas Garcia, R. Bruce, H. Timko, G. Arduini, N. Mounet, Y. Papaphilippou, B. Salvant, S. Redaelli *et al.*, "Lhc configuration and operational scenario for run 3," Tech. Rep., 2021.

[16] S. Zanikolas and R. Sakellariou, "A taxonomy of grid monitoring systems," *Future Generation Computer Systems*, vol. 21, no. 1, pp. 163–188, 2005.

[17] R. Aydt, D. Gunter, W. Smith, M. Swany, V. Taylor, B. Tierney, and R. Wolski, "A grid monitoring architecture," *Recommendation GWD-I (Rev. 16*, 2002.

[18] S. Andreozzi, C. Aiftimiei, G. Cuscela, S. Dal Pra, G. Donvito, V. Dudhalkar, S. Fantinel, E. Fattibene, G. Maggi, G. Misurelli *et al.*, "Next steps in the evolution of gridice: a monitoring tool for grid systems," in *Journal of Physics: Conference Series*, vol. 119, no. 6. IOP Publishing, 2008, p. 062010.

[19] S. Andreozzi, M. Sgaravatto, and C. Vistoli, "Sharing a conceptual model of grid resources and services," *arXiv preprint cs/0306111*, 2003.

[20] T. Bray, J. Paoli, C. M. Sperberg-McQueen, E. Maler, and F. Yergeau, "Extensible markup language (xml)," *World Wide Web Journal*, vol. 2, no. 4, pp. 27–66, 1997.

[21] D. H. Karuna, N. Mangala, B. Prahlada Rao, and N. Mohan Ram, "Paryavekshanam: a status monitoring tool for indian grid garuda," in *24th NORDUnet2008 Conference–The Biosphere of Grids and Networks, Espoo, Finland*, 2008, pp. 9–11.

[22] B. Prahlada Rao, S. Ramakrishnan, M. Raja Gopalan, C. Subrata, N. Mangala, and R. Sridharan, "e-infrastructures in it: A case study on indian national grid computing initiative–garuda," *Computer Science-Research and Development*, vol. 23, no. 3, pp. 283–290, 2009.

[23] I. Legrand, C. Cirstoiu, C. Grigoras, R. Voicu, M. Toarta, C. Dobre, and H. Newman, "Monalisa: An agent based, dynamic service system to monitor, control and optimize grid based applications," 2005.

[24] J. Balcas, D. Kcira, A. Mughal, H. Newman, M. Spiropulu, and J.-R. Vlimant, "Monalisa, an agent-based monitoring and control system for the lhc experiments," *Journal of Physics: Conference Series*, vol. 898, p. 092055, 10 2017.

[25] D. Petković, "Json integration in relational database systems," *Int J Comput Appl*, vol. 168, no. 5, pp. 14–19, 2017.

[26] A. Aimar, A. A. Corman, P. Andrade, J. D. Fernandez, B. G. Bear, E. Karavakis, D. M. Kulikowski, and L. Magnoni, "Monit: monitoring the cern data centres and the wlcg infrastructure," in *EPJ Web of Conferences*, vol. 214. EDP Sciences, 2019, p. 08031.

[27] M. Babik, I. Fedorko, N. Hook, H. T. Lansdale, D. Lenkes, M. Siket, and D. Waldron, "Lemon-lhc era monitoring for large-scale infrastructures," in *Journal of Physics: Conference Series*, vol. 331, no. 5. IOP Publishing, 2011, p. 052025.

[28] J. Andreeva, M. Boehm, B. Gaidioz, E. Karavakis, L. Kokoszkiewicz, E. Lanciotti, G. Maier, W. Ollivier, R. Rocha, P. Saiz *et al.*, "Experiment dashboard for monitoring computing activities of the lhc virtual organizations," *Journal of Grid Computing*, vol. 8, no. 2, pp. 323–339, 2010.

[29] B. Elasticsearch, "Elasticsearch," vol. 6, no. 1, 2018.

[30] Y. Gupta, *Kibana essentials*. Packt Publishing Ltd, 2015.

[31] N. Garg, *Apache kafka*. Packt Publishing Birmingham, UK, 2013.

[32] L. Gardi, "Hardware monitoring with collectd," Tech. Rep., 2018.

[33] M. Zaharia, R. S. Xin, P. Wendell, T. Das, M. Armbrust, A. Dave, X. Meng, J. Rosen, S. Venkataraman, M. J. Franklin *et al.*, "Apache spark: a unified engine for big data processing," *Communications of the ACM*, vol. 59, no. 11, pp. 56–65, 2016.

[34] D. Borthakur *et al.*, "Hdfs architecture guide," *Hadoop apache project*, vol. 53, no. 1-13, p. 2, 2008.

[35] M. Chakraborty and A. P. Kundan, "Grafana," in *Monitoring Cloud-Native Applications: Lead Agile Operations Confidently Using Open Source Software*. Springer, 2021, pp. 187–240.

[36] D. Piparo, E. Tejedor, P. Mato, L. Mascetti, J. Moscicki, and M. Lamanna, "Swan: A service for interactive analysis in the cloud," *Future Generation Computer Systems*, vol. 78, pp. 1071–1078, 2018.

[37] M. M. Storetvedt, “A new grid workflow for data analysis within the alice project using containers and modern cloud technologies,” 2023.

[38] E. B. Sandvik, “Site sonar-a monitoring tool for alice’s grid sites,” Master’s thesis, The University of Bergen, 2021.

[39] W. Barth, *Nagios: System and network monitoring*. No Starch Press, 2008.

[40] M. L. Massie, B. N. Chun, and D. E. Culler, “The ganglia distributed monitoring system: design, implementation, and experience,” *Parallel Computing*, vol. 30, no. 7, pp. 817–840, 2004.

[41] P. Saiz, L. Aphecetche, P. Bunčić, R. Piskač, J.-E. Revsbech, V. Šego, A. Collaboration *et al.*, “Alien—alice environment on the grid,” *Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, vol. 502, no. 2-3, pp. 437–440, 2003.

[42] R. Cruceru, “Enabling distributed analysis for alice run 3,” *arXiv preprint arXiv:2211.12276*, 2022.

[43] A. Collaboration, G. Aad, T. Abajyan, B. Abbott, J. Abdallah, S. Abdel Khalek, A. A. Abdelalim, O. Abdinov, R. Aben, B. Abi *et al.*, “A particle consistent with the higgs boson observed with the atlas detector at the large hadron collider,” *Science*, vol. 338, no. 6114, pp. 1576–1582, 2012.

[44] T. Maeno, K. De, A. Klimentov, P. Nilsson, D. Oleynik, S. Panitkin, A. Petrosyan, J. Schovancova, A. Vaniachine, T. Wenaus *et al.*, “Evolution of the atlas panda workload management system for exascale computational science,” in *Journal of Physics: Conference Series*, vol. 513, no. 3. IOP Publishing, 2014, p. 032062.

[45] F. H. B. Megino, A. Alekseev, F. Berghaus, D. Cameron, K. De, A. Filipcic, I. Glushkov, F. Lin, T. Maeno, and N. Magini, “Managing the atlas grid through harvester,” in *EPJ Web of Conferences*, vol. 245. EDP Sciences, 2020, p. 03010.

[46] “Atlas production task brokerage,” https://panda-wms.readthedocs.io/en/latest/advanced/brokerage.html#id6, accessed: 2023-04-29.

[47] I. Sfiligoi, “glideinwms—a generic pilot-based workload management system,” in *Journal of Physics: Conference Series*, vol. 119, no. 6. IOP Publishing, 2008, p. 062044.

[48] D. Bradley, O. Gutsche, K. Hahn, B. Holzman, S. Padhi, H. Pi, D. Spiga, I. Sfiligoi, E. Vaandering, F. Würthwein *et al.*, “Use of glide-ins in cms for production and analysis,” in *Journal of Physics: Conference Series*, vol. 219, no. 7. IOP Publishing, 2010, p. 072013.

[49] M. M. Pedreira, C. Grigoras, and V. Yurchenko, "Jalien: the new alice high-performance and high-scalability grid framework," in *EPJ Web of Conferences*, vol. 214. EDP Sciences, 2019, p. 03037.

[50] M. Storetvedt, L. Betev, H. Helstrup, K. F. Hetland, and B. Kileng, "Running alice grid jobs in containers a new approach to job execution for the next generation alice grid framework," in *EPJ Web of Conferences*, vol. 245. EDP Sciences, 2020, p. 07052.

[51] D. Álvarez, K. Sala, and V. Beltran, "nos-v: Co-executing hpc applications using system-wide task scheduling," *arXiv preprint arXiv:2204.10768*, 2022.

[52] E. B. Sandvik, "Site sonar - a monitoring tool for alice's grid sites," 2021.

[53] A. Reelsen, "Using elasticsearch, logstash and kibana to create real-time dashboards," *Dostupné z. Available online: https://speakerdeck.com/elasticsearch/using-elasticsearch-logstash-and-kibana-to-create-realtimedashboards*, 2014.

[54] R. Rosen, "Resource management: Linux kernel namespaces and cgroups," *Haifux, May*, vol. 186, p. 70, 2013.