

- [1] A. Ali *et al.*, "From Grid middleware to a Grid operating system," in *Proceedings - Fifth International Conference on Grid and Cooperative Computing*, 2006, pp. 9–16.
- [2] M. Caramia, S. Giordani, and A. Iovanella, "Grid scheduling by on-line rectangle packing," *Networks An Int. J.*, vol. 44, no. 2, pp. 106–119, 2004.
- [3] I. Foster, "The grid: A new infrastructure for 21st century science," in *Grid Computing: Making the Global Infrastructure a Reality*, vol. 55, no. 2, John Wiley & Sons, Ltd, 2002, pp. 50–62.
- [4] I. Foster and C. Kesselman, *The Grid 2 - Blueprint for a New Computing Infrastructure*. Los Altos, California: Morgan Kaufmann, 2004.
- [5] I. Foster, C. Kesselman, and S. Tuecke, "The anatomy of the grid: Enabling scalable virtual organizations," *Int. J. High Perform. Comput. Appl.*, vol. 15, no. 3, pp. 200–222, 2001.
- [6] I. Foster and A. Iamnitchi, "On Death, Taxes, and the Convergence of Peer-to-Peer and Grid Computing," in *IPTPS: International Workshop on Peer-to-Peer Systems*, 2011, pp. 118–128.
- [7] A. W. Mu'alem and D. G. Feitelson, "Utilization, predictability, workloads, and user runtime estimates in scheduling the IBM SP2 with backfilling," *IEEE Trans. Parallel Distrib. Syst.*, vol. 12, no. 6, pp. 529–543, 2001.
- [8] A. Sulistio and R. Buyya, "A grid simulation infrastructure supporting advance reservation," in *16th International Conference on Parallel and Distributed Computing and Systems*, 2004, pp. 1–7.
- [9] J. Maclaren, "Advanced Reservations: State of the Art," *Working Draft, Global Grid Forum*, 2003. [Online]. Available: <http://www.ggf.org>.
- [10] I. Foster, C. Kesselman, C. Lee, B. Lindell, K. Nahrstedt, and A. Roy, "A distributed resource management architecture that supports advance reservations and co-allocation," in *Seventh International Workshop on Quality of Service. IWQoS'99*, 1999, pp. 27–36.
- [11] K. Czajkowski *et al.*, "A resource management architecture for metacomputing systems," in *4th Workshop on Job Scheduling Strategies for Parallel Processing. LNCS*, 1998, pp. 62–82.
- [12] R. Buyya and M. Murshed, "GridSim: A toolkit for the modeling and simulation of distributed resource management and scheduling for grid computing," *Concurr. Comput. Pract. Exp.*, vol. 14, no. 13, pp. 1175–1220, 2002.

- [13] W. Smith, I. Foster, and V. Taylor, "Scheduling with advanced reservations," in *Proceedings 14th International Parallel and Distributed Processing Symposium. IPDPS*, 2002, pp. 127–132.
- [14] P. Xiao, Z. Hu, X. Li, and L. Yang, "A novel statistic-based relaxed grid resource reservation strategy," in *Proceedings of The 9th International Conference for Young Computer Scientists ICYCS 2008*, 2008, pp. 703–707.
- [15] C. B. Lee and A. Snively, "On the user-scheduler dialogue: Studies of user-provided runtime estimates and utility functions," *Int. J. High Perform. Comput. Appl.*, vol. 20, no. 4, pp. 495–506, 2006.
- [16] C. Castillo, G. N. Rouskas, and K. Harfoush, "On the design of online scheduling algorithms for advance reservations and QoS in grids," in *Proceedings 21st International Parallel and Distributed Processing Symposium*, 2007, pp. 1–10.
- [17] M. Barshan, H. Moens, B. Volckaert, and F. De Turck, "A comparative analysis of flexible and fixed size timeslots for advance bandwidth reservations in media production networks," in *2016 7th International Conference on the Network of the Future (NOF)*, 2016, pp. 1–6.
- [18] M. Barshan, H. Moens, J. Famaey, and F. De Turck, "Deadline-aware advance reservation scheduling algorithms for media production networks," *Comput. Commun.*, vol. 77, no. 16, pp. 26–40, 2016.
- [19] E. Gomes and M. A. R. Dantas, "Towards a resource reservation approach for an opportunistic computing environment," *J. Phys. Conf. Ser.*, vol. 540, no. 2, pp. 1–9, 2014.
- [20] A. Mishra, "An enhanced and effective preemption based scheduling for grid computing enabling backfilling technique," in *International Conference on Advances in Computer Engineering and Applications (ICACEA)*, 2015, pp. 1015–1018.
- [21] O. Dakkak, S. Awang Nor, and S. Arif, "Scheduling through backfilling technique for HPC applications in grid computing environment," in *2016 IEEE Conference on Open Systems (ICOS)*, 2017, pp. 30–35.
- [22] S. Leonenkov and S. Zhumatiy, "Introducing New Backfill-based Scheduler for SLURM Resource Manager," *Procedia Comput. Sci.*, vol. 66, pp. 661–669, 2015.
- [23] R. Istrate, A. Poenaru, and F. Pop, "Advance reservation system for datacenters," in *IEEE 30th International Conference on Advanced Information Networking and Applications (AINA)*, 2016, pp. 637–644.
- [24] C. Hu, J. Huai, and T. Wo, "Flexible resource reservation using slack time for service grid," in *International Conference on Parallel and Distributed Systems (ICPADS'06)*, 2006, pp. 327–334.

- [25] M. A. S. Netto, K. Bubendorfer, and R. Buyya, "SLA-Based Advance Reservations with Flexible and Adaptive Time QoS Parameters," in *Service-Oriented Computing – ICSOC*, 2007, pp. 119–131.
- [26] B. Barzegar, A. M. Rahmani, K. Zamanifar, and A. Divsalar, "Gravitational emulation local search algorithm for advanced reservation and scheduling in grid computing systems," in *ICCIT 2009 - 4th International Conference on Computer Sciences and Convergence Information Technology*, 2009, pp. 1240–1245.
- [27] L. Grandinetti, F. Guerriero, L. Di Puglia Pugliese, and M. Sheikhalishahi, "Heuristics for the local grid scheduling problem with processing time constraints," *J. Heuristics*, vol. 21, no. 4, pp. 523–547, 2015.
- [28] A. Shukla, S. Kumar, and H. Singh, "An improved resource allocation model for grid computing environment," *Int. J. Intell. Eng. Syst.*, vol. 12, no. 1, pp. 104–113, 2019.
- [29] R. Umar, A. Agarwal, and C. R. Rao, "Advance Planning and Reservation in a Grid System," in *Communications in Computer and Information Science*, 2012, vol. 293, pp. 161–173.
- [30] L. O. Burchard, "Analysis of data structures for admission control of advance reservation requests," *IEEE Trans. Knowl. Data Eng.*, vol. 17, no. 3, pp. 413–424, 2005.
- [31] L.-O. Burchard and H.-U. Heiss, "Performance Evaluation of Data Structures for Admission Control in Bandwidth Brokers," in *International Symposium of Performance Evaluation of Computer and Telecommunication Systems (SPECTS '02)*, 2002, pp. 652–659.
- [32] A. Sulistio, K. H. Kim, and R. Buyya, "On incorporating an on-line strip packing algorithm into elastic grid reservation-based systems," in *Proceedings of the International Conference on Parallel and Distributed Systems - ICPADS*, 2007, vol. 1, pp. 1–8.
- [33] J. Shi, J. Luo, F. Dong, J. Zhang, and J. Zhang, "Elastic resource provisioning for scientific workflow scheduling in cloud under budget and deadline constraints," *Cluster Comput.*, vol. 19, no. 1, pp. 167–182, 2016.
- [34] P. Xiao and Z. Hu, "Two-dimension relaxed reservation policy for independent tasks in grid computing," *J. Softw.*, vol. 6, no. 8, pp. 1395–1402, 2011.
- [35] I. Foster, A. Roy, and V. Sander, "A quality of service architecture that combines resource reservation and application adaptation," in *Eighth International Workshop on Quality of Service. IWQoS*, 2000, pp. 181–188.

- [36] B. S. Sabitharani, R. Venkatesan, and R. Ramalakshmi, "Resource reservation in grid computing environments: Design issues," in *2011 3rd International Conference on Electronics Computer Technology*, 2011, vol. 6, pp. 66–70.
- [37] F. Camillo, E. Caron, R. Guivarch, A. Hurault, C. Klein, and C. Pérez, "Resource management architecture for fair scheduling of optional computations," in *Eighth International Conference on P2P, Parallel, Grid, Cloud and Internet Computing: 3PGCIC*, 2013, pp. 113–120.
- [38] B. Li, Y. Pei, H. Wu, and B. Shen, "Resource availability-aware advance reservation for parallel jobs with deadlines," *J. Supercomput.*, vol. 68, no. 2, pp. 798–819, 2014.
- [39] S. Sahhaf, M. Barshan, W. Tavernier, H. Moens, D. Colle, and M. Pickavet, "Resilient algorithms for advance bandwidth reservation in media production networks," in *Proceedings of the 2016 12th International Conference on the Design of Reliable Communication Networks (DRCN2016)*, 2016, pp. 130–137.
- [40] C. Castillo, G. N. Rouskas, and K. Harfoush, "Online algorithms for advance resource reservations," *J. Parallel Distrib. Comput.*, vol. 71, no. 7, pp. 963–973, 2011.
- [41] N. R. Kaushik, S. M. Figueira, and S. A. Chiappari, "Flexible time-windows for advance reservation scheduling," in *Proceedings - IEEE Computer Society's Annual International Symposium on Modeling, Analysis, and Simulation of Computer and Telecommunications Systems, MASCOTS*, 2006, pp. 218–225.
- [42] H. R. Moaddeli, G. Dastghaibiyfard, and M. R. Moosavi, "Flexible advance reservation impact on backfilling scheduling strategies," in *Proceedings - 7th International Conference on Grid and Cooperative Computing, GCC 2008*, 2008, pp. 151–159.
- [43] B. Li, Y. Pei, H. Wu, X. Zhao, and B. Shen, "Scheduling algorithms based on resource fragmentation for advance reservation tasks," in *International Conference on Communication Systems and Network Technologies (CSNT)*, 2014, pp. 1017–1021.
- [44] A. Pujiyanta, L. E. Nugroho, and Widyawan, "Planning and Scheduling Jobs on Grid Computing," in *Proceeding - 2018 International Symposium on Advanced Intelligent Informatics: Revolutionize Intelligent Informatics Spectrum for Humanity, SAIN 2018*, 2019, pp. 162–166.
- [45] Mikhail J. Atallah and M. Blanton, *Algorithms and Theory of Computation Handbook*, 2nd ed. New York: Taylor and Francis Group, LLC, 2010.
- [46] A. Chandak, "An Overview of Task Scheduling and Performance Metrics in Grid Computing," *Int. J. Res. Rev. Comput. Sci.*, vol. 2, no. 2, pp. 30–33, 2011.
- [47] F. Dong and S. G. Akl, "Scheduling Algorithms for Grid Computing : State of the Art and Open Problems," *Components*, vol. 202, no. 4, pp. 1–55, 2006.

- [48] A. Kertesz, P. Kacsuk, I. Rodero, F. Guim, and J. Corbalan, "Meta-Brokering requirements and research directions in state-of-the-art Grid Resource Management," *CoreGRID Technical Report*, CoreGRID, London, pp. 1–24, Nov-2007.
- [49] R. Buyya, D. Abramson, and S. Venugopal, "The grid economy," *Proc. IEEE*, vol. 93, no. 3, pp. 698–714, 2005.
- [50] U. Schwiegelshohn and R. Yahyapour, "Attributes for Communication Between Grid Scheduling Instances," in *Grid Resource Management: State of the Art and Future Trends*, New York: Springer, Boston, MA, 2004, pp. 41–52.
- [51] C. S. Yeo *et al.*, "Utility Computing on Global Grids," in *Handbook of Computer Networks: Distributed Networks, Network Planning, Control, Management, and New Trends and Applications*, New Jersey: John Wiley & Sons, Inc., 2012, pp. 110–130.
- [52] J. G. and L. K. David Abramson, "High Performance Parametric Modeling with Nimrod / G: Killer Application for the Global Grid," in *Proceedings 14th International Parallel and Distributed Processing Symposium. IPDPS*, 2000, pp. 1–9.
- [53] L. Childers, T. Disz, R. Olson, M. E. Papka, R. Stevens, and T. Udeshi, "Access Grid: Immersive Group-to-Group Collaborative Visualization," in *4th International Immersive Projection Technology Workshop, Ames, IA (US)*, 2000, pp. 1–9.
- [54] W. Hoschek, J. Jaen-Martinez, A. Samar, H. Stockinger, and K. Stockinger, "Data management in an international data grid project," in *Grid Computing — GRID 2000*, 2000, vol. 1971, pp. 77–90.
- [55] K. Seymour, A. YarKhan, S. Agrawal, and J. Dongarra, "NetSolve: Grid enabling scientific computing environments," *Adv. Parallel Comput.*, vol. 14, pp. 33–51, 2005.
- [56] M. Cannataro and D. Talia, "The knowledge grid," *Commun. ACM*, vol. 46, no. 1, pp. 89–93, 2003.
- [57] S. Graupner, J. Pruyne, and S. Singhal, "Making the Utility Data Center a Power Station for the Enterprise Grid," *Internet Systems and Storage Laboratory, HP Laboratories Palo Alto*, United States, pp. 1–19, 2003.
- [58] R. Buyya and S. Venugopal, "The gridbus toolkit for service oriented grid and utility computing: an overview and status report," in *1st International Workshop on Grid Economics and Business Models (GECON'04)*, 2004, pp. 19–66.
- [59] P. Kacsuk and G. Sipos, "Multi-Grid, multi-user workflows in the P-GRADE Grid portal," *J. Grid Comput.*, vol. 3, no. 4, pp. 221–238, 2005.



- [60] H. Gibbins, K. Nadiminti, B. Beeson, R. Chhabra, B. Smith, and R. Buyya, "The Australian BioGrid Portal: Empowering the Molecular Docking Research Community," in *Proceedings of the 3rd APAC Conference and Exhibition on Advanced Computing, Grid Applications and eResearch (APAC'05)*, 2005, pp. 26–46.
- [61] H. B. Prajapati and V. A. Shah, "Scheduling in grid computing environment," in *International Conference on Advanced Computing & Communication Technologies (ACCT)*, 2014, pp. 315–324.
- [62] J. Yang, Y. Bai, and Y. Qiu, "A decentralized resource allocation policy in minigrid," *Futur. Gener. Comput. Syst.*, vol. 23, no. 3, pp. 359–366, 2007.
- [63] T. Aubrey-Jones and B. Fischer, "Synthesizing MPI Implementations from Functional Data-Parallel Programs," *Int. J. Parallel Program.*, vol. 44, no. 3, pp. 552–573, 2016.
- [64] G. E. Moore, "Cramming more components onto integrated circuits (Reprinted from Electronics," *Proc. Ieee*, vol. 86, no. 1, pp. 82–85, 1998.
- [65] K. Hwang and Z. Xu, "Scalable parallel computers for real-time signal processing," *IEEE Signal Process. Mag.*, vol. 13, no. 4, pp. 50–66, 1996.
- [66] M. P. Tiemeyer and J. S. K. Wong, "A Task Migration Algorithm for Heterogeneous Distributed Computing Systems," *J. Syst. Softw.*, vol. 41, no. 3, pp. 175–188, 1998.
- [67] T. Järvinen, P. Salmela, H. Sorokin, and J. Takala, "Stride permutation networks for array processors," *J. VLSI Signal Process. Syst. Signal Image. Video Technol.*, vol. 49, no. 1, pp. 51–71, 2007.
- [68] S. Arora and B. Barak, *Computational Complexity: A Modern Approach*, vol. 1. Princeton: Princeton University, 2007.
- [69] M. P. Bekakos, "Permutation Matrices of Reverse r-th Stride," *APPL. MATH. INFORM. MECH*, vol. 5, no. 2, pp. 79–84, 2013.
- [70] N. Charbonneau and V. M. Vokkarane, "A survey of advance reservation routing and wavelength assignment in wavelength-routed WDM networks," *IEEE Commun. Surv. Tutorials*, vol. 14, no. 4, pp. 1037–1064, 2012.
- [71] A. Sulistio, U. Cibej, S. K. Prasad, and R. Buyya, "GarQ: An efficient scheduling data structure for advance reservations of grid resources," *Int. J. Parallel, Emergent Distrib. Syst.*, vol. 24, no. 1, pp. 1–19, 2009.
- [72] L. Wu, P. Dang, T. Yu, and L. Nie, "Research on efficient non-slotted tree structures for advance reservation," *Commun. Comput. Inf. Sci.*, vol. 401, pp. 50–61, 2013.



- [73] A. Brodnik and A. Nilsson, "A Static Data Structure for Discrete Advance Bandwidth Reservations on the Internet," in *Swedish National Computer Networking Workshop (SNCNW)*, 2003, pp. 1–15.
- [74] R. Brown, "Calendar queues: a fast $O(1)$ priority queue implementation for the simulation event set problem," *Commun. ACM*, vol. 31, no. 10, pp. 1220–1227, 1988.
- [75] R. A. Guerin and A. Orda, "Networks with advance reservations: The routing perspective," *Proc. - IEEE INFOCOM*, vol. 1, pp. 118–127, 2000.
- [76] O. Schelen, A. Nilsson, J. Norrgard, and S. Pink, "Performance of QoS Agents for Provisioning Network Resources," in *International Workshop on Quality of Service, London, UK, United Kingdom*, 1999, pp. 17–26.
- [77] T. Wang and J. Chen, "Bandwidth Tree -A Data Structure for Routing in Networks with Advanced Reservations," in *21st International Performance, Computing, and Communications Conference (IPCCC)*, 2002, pp. 37–44.
- [78] L. Yuan, C. K. Tham, and A. L. Ananda, "A probing approach for effective distributed resource reservation," in *International Workshop on Quality of Service in Multiservice IP Networks*, 2003, pp. 672–688.
- [79] K. Mehlhorn, *Data structures and algorithms III: Multi-dimensional searching and computational geometry*. New York: Springer-Verlag, 1984.
- [80] Q. Xiong, C. Wu, J. Xing, L. Wu, and H. Zhang, "A linked-list data structure for advance reservation admission control," in *International Conference on Computer Network and Mobile Computing (ICCNMC 2005)*, 2005, pp. 901–910.
- [81] M. Khalil-Hani, M. N. Marsono, and R. Bakhteri, "Biometric encryption based on a fuzzy vault scheme with a fast chaff generation algorithm," *Futur. Gener. Comput. Syst.*, vol. 29, no. 3, pp. 800–810, 2013.
- [82] R. G. Sargent, "Verification and validation of simulation models," in *Winter Simulation Conference*, 2011, pp. 166–183.
- [83] A. Iosup, D. H. J. Epema, J. Maassen, and R. Van Nieuwpoort, "Synthetic grid workloads with Ibis, KOALA, and GRENCHMARK," in *CoreGRID Integration Workshop (CGIW2005)*, 2007, pp. 271–283.
- [84] J. Banks, J. Carson, B. L. Nelson, and D. Nicol, *Discrete-event system simulation (Fourth edition)*, Fourth Edi. New Jersey: Prentice-Hall International Series in Industrial and Systems Engineering, 1984.
- [85] R. Buyya and A. Sulistio, "Service and utility oriented distributed computing systems: Challenges and opportunities for modeling and simulation communities," in *41st Annual Simulation Symposium (anss-41 2008)*, 2008, pp. 68–81.

- [86] A. Sulistio, K. H. Kim, and R. Buyya, "Using revenue management to determine pricing of reservations," in *Third IEEE International Conference on e-Science and Grid Computing (e-Science 2007)*, 2007, pp. 396–404.
- [87] M. Carvalho and F. Brasileiro, "A user-based model of grid computing workloads," in *2012 ACM/IEEE 13th International Conference on Grid Computing*, 2012, pp. 40–48.
- [88] A. Hiraes-Carbajal, J.-L. González-García, and A. Tchernykh, "Workload Generation for Trace Based Grid Simulations," in *Procedding of the 1st international supercomputer conference in Mexico ISUM.*, 2010, pp. 1–9.
- [89] C. Xu and J. W. Wong, "Scheduling algorithms for advance resource reservation," in *IFIP TC-6 Eighth International Conference on High Performance Networking (HPN'98) Vienna, Austria*, 1998, pp. 659–671.
- [90] H. Dail, H. Casanova, and F. Berman, "A Decoupled Scheduling Approach for the GrADS Program Development Environment," in *SC '02: Proceedings of the 2002 ACM/IEEE Conference on Supercomputing*, 2002, pp. 55–55.
- [91] S. H. H. Madni, M. S. A. Latiff, Y. Coulibaly, and S. M. Abdulhamid, "Recent advancements in resource allocation techniques for cloud computing environment: a systematic review," *Cluster Comput.*, vol. 20, no. 3, pp. 45–91, 2017.
- [92] J. Yu and R. Buyya, "A taxonomy of scientific workflow systems for grid computing," *ACM SIGMOD Rec.*, vol. 34, no. 3, pp. 44–50, 2005.
- [93] S. Singh and I. Chana, "Cloud resource provisioning: survey, status and future research directions," *Knowl. Inf. Syst.*, vol. 49, no. 3, pp. 1005–1069, 2016.
- [94] S. Singh and I. Chana, "QoS-aware autonomic resource management in cloud computing: A systematic review," *ACM Comput. Surv.*, vol. 48, no. 3, pp. 1–46, 2015.
- [95] D. Tsafirir, Y. Etsion, and D. G. Feitelson, "Backfilling using system-generated predictions rather than user runtime estimates," *IEEE Trans. Parallel Distrib. Syst.*, vol. 18, no. 6, pp. 789–803, 2007.
- [96] N. Jayapandian, "Parallel queue scheduling in Dynamic Cloud environment using Backfilling algorithm," *Int. J. Intell. Eng. Syst.*, vol. 11, no. 2, pp. 39–48, 2018.
- [97] M. Zhao and R. J. Figueiredo, "Experimental study of virtual machine migration in support of reservation of cluster resources," in *Proceedings of the 2nd International Workshop on Virtualization Technology in Distributed Computing (VTDC '07)*, 2007, pp. 1–8.
- [98] B. Sotomayor, R. S. Montero, I. M. Llorente, and I. Foster, "Resource leasing and the art of suspending virtual machines," in *2009 11th IEEE International Conference on High Performance Computing and Communications*, 2009, pp. 59–68.

- [99] B. Sotomayor, K. Keahey, and I. Foster, "Combining batch execution and leasing using virtual machines," in *HPDC '08: Proceedings of the 17th international symposium on High performance distributed computing*, 2008, pp. 87–96.
- [100] P. Gupta, M. Samvatsar, and U. Singh, "Cloud computing through dynamic resource allocation scheme," in *2017 International conference of Electronics, Communication and Aerospace Technology (ICECA)*, 2017, pp. 544–548.
- [101] H. Huang, L. Wang, B. C. Tak, L. Wang, and C. Tang, "CAP3: A cloud auto-provisioning framework for parallel processing using on-demand and spot instances," in *IEEE Sixth International Conference on Cloud Computing*, 2013, pp. 228–235.
- [102] B. Tan, H. Ma, and Y. Mei, "Novel genetic algorithm with dual chromosome representation for resource allocation in container-based clouds," in *IEEE International Conference on Cloud Computing, CLOUD*, 2019, pp. 452–456.
- [103] A. Wolke, M. Bichler, and T. Setzer, "Planning vs. Dynamic Control: Resource Allocation in Corporate Clouds," *IEEE Trans. Cloud Comput.*, vol. 4, no. 3, pp. 322–335, 2016.
- [104] Z. Ding, Y. C. Tian, and M. Tang, "Efficient Fitness Function Computation of Genetic Algorithm in Virtual Machine Placement for Greener Data Centers," in *IEEE 16th International Conference on Industrial Informatics (INDIN)*, 2018, pp. 181–186.
- [105] K. Kaur, T. Dhand, N. Kumar, and S. Zeadally, "Container-as-a-service at the edge: trade- off between energy efficiency and service availability at fog nano data centers," *IEEE Wirel. Commun.*, vol. 24, no. 3, pp. 48–56, 2017.
- [106] S. F. Piraghaj, A. V. Dastjerdi, R. N. Calheiros, and R. Buyya, "A Framework and Algorithm for Energy Efficient Container Consolidation in Cloud Data Centers," in *2015 IEEE International Conference on Data Science and Data Intensive Systems*, 2015, pp. 368–375.