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(57) Abstract :

An automated system for detecting software performance bottlenecks comprises a telemetry acquisition layer (101), a normalization engine (102), a dependency correlation engine (103), a bottleneck inference engine (104), a ranking controller (105), and an output interface (106). Runtime observations from software entities are converted into standardized performance descriptors and correlated through relationship mappings. Candidate bottleneck locations are inferred from contention, delay propagation, and saturation signatures. Ranked diagnostic output identifies a constraining component and bottleneck category, thereby supporting rapid performance diagnosis in distributed and standalone software environments.

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