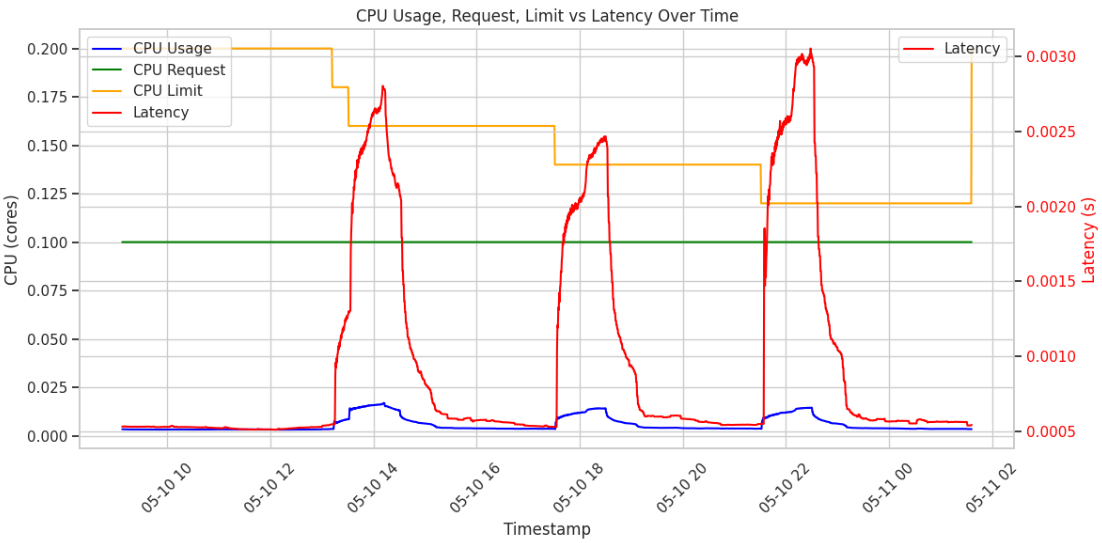
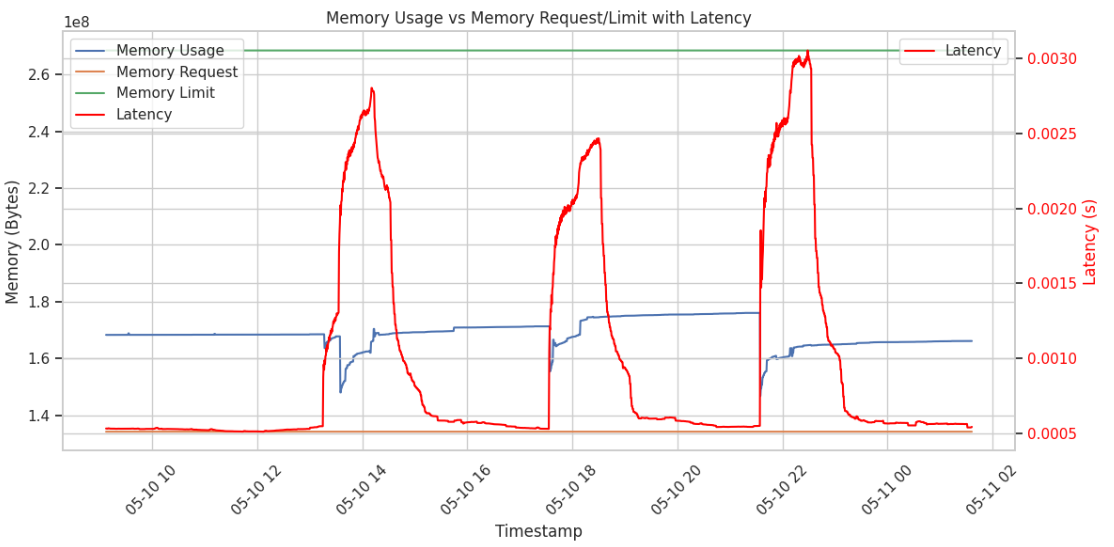
# HashGen Service





* Latency correlates strongly with CPU usage spikes. So, this service is CPU intensive.
* Post-spike, once CPU usage drops, latency returns to low values, indicating no long-term system degradation.
* A slight latency increment at the end indicates:
  + Memory/CPU fragmentation
  + Increased queuing delays due to reduction of CPU
  + Application-level slowdown due to frequent container resource patching (As we’re dynamically reducing limits)
* At each latency spike, memory usage falls rapidly, implying memory is being released & container is restarted.
* The increasing slope before the drop suggests gradual memory accumulation, e.g., from unfreed objects or request buffers not being released.

Why is this graph different from service 1 & service 2 graphs?

1. Sharp, Periodic Latency Spikes

* Unlike previous services that may have had steady or gradually increasing latency, this graph shows distinct, periodic spikes.
* These spikes align precisely with CPU and memory usage peaks, suggesting a strong resource-bound behavior — especially CPU.

This pattern is common for stateless**,** compute-bound workloads (like hash generators), where each request triggers intense CPU processing (SHA). Once requests queue up faster than they can be processed (due to CPU limits), latency surges rapidly — then drops once load subsides.

1. Latency Drops Immediately After Peaks

The latency returns to near-zero immediately after usage drops, which differs from services where latency lingers due to cache misses, DB backlogs, or I/O saturation.

Hash generation doesn't rely on external services (e.g., DB, caches), so once CPU/memory pressure is relieved, it can process new requests quickly. Previous services might have had downstream dependencies that cause persistent latency even after load drops.

1. Latency spikes are tightly tied to CPU/mem exhaustion and drop instantly when load eases.

1. Previous services hadstateful, or multi-tier architecture influences.