Gradient based method to Learn Temporal Energy Efficient Data Storage Array Policies

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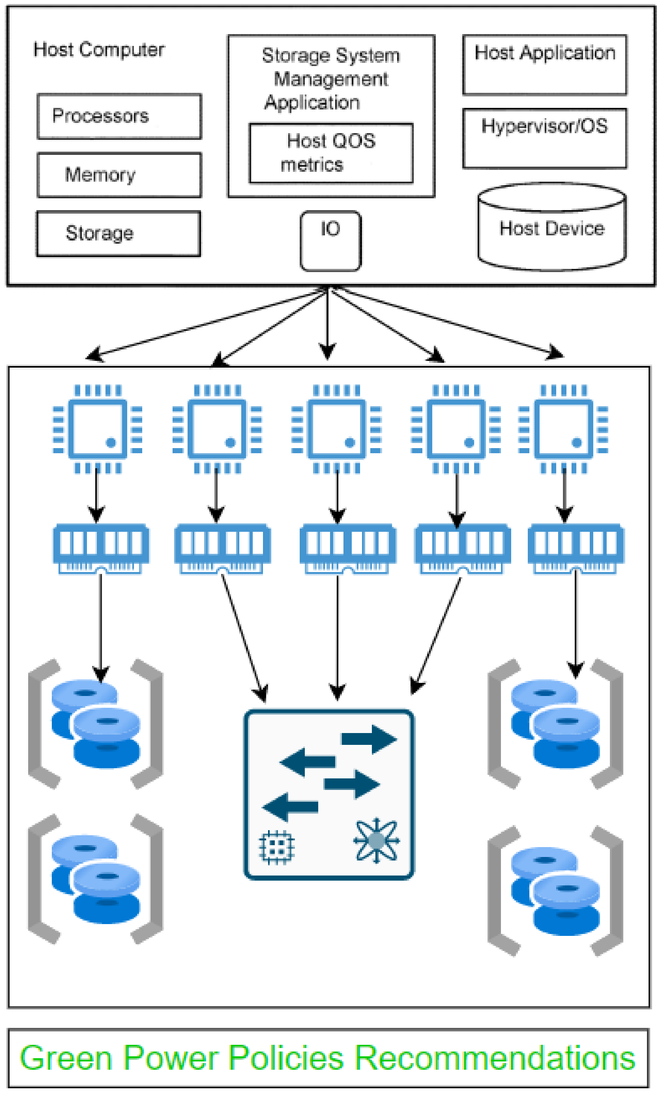
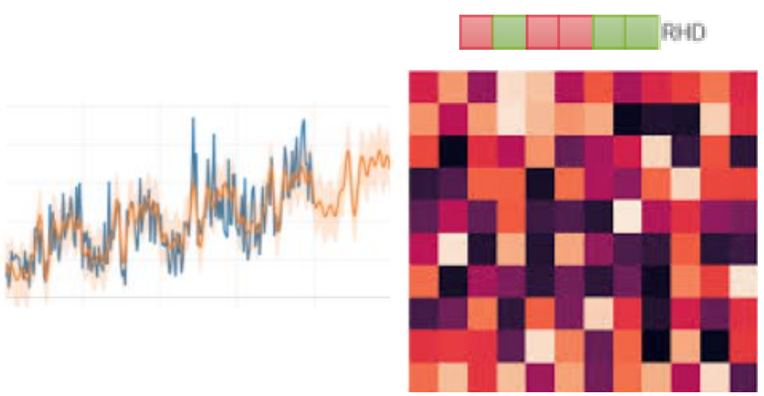
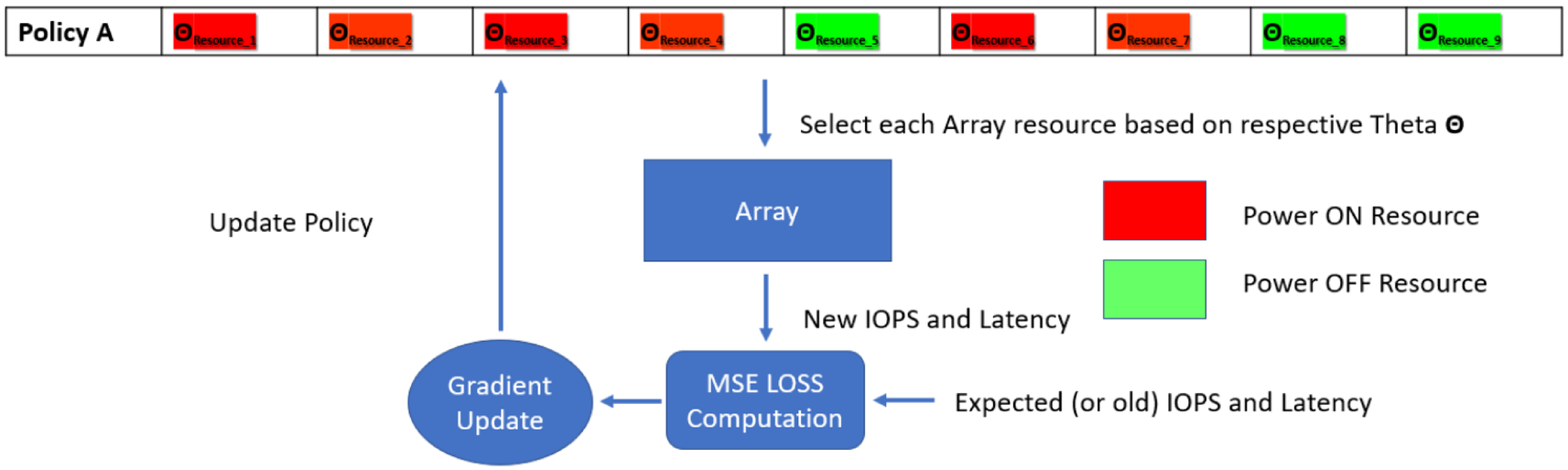


Incoming Input and outputs (IOs) from various hosts to disk-based enterprise data storage centers



Classification of IOs into red hot and cold data with time series forecasting

- Our gradient based method takes IO latency and IOPs as labels
- Number of data center resources are the input data
- Our method learns the unnecessary resources consuming power
- Switching OFF these resources will not affect Quality of Service
- Reduced power consumption
- Carbon footprint sustainability metrics are improved



Policy A Time window 1	Resource 1	Resource 2	Resource 3	Resource 4	Resource 5	Resource 6	Resource 7	Resource 8	Resource 9
Policy B Time window 2	Resource 1	Resource 2	Resource 3	Resource 4	Resource 5	Resource 6	Resource 7	Resource 8	Resource 9
Policy C Time window 3	Resource 1	Resource 2	Resource 3	Resource 4	Resource 5	Resource 6	Resource 7	Resource 8	Resource 9
Policy N Time window N	Resource 1	Resource 2	Resource 3	Resource 4	Resource 5	Resource 6	Resource 7	Resource 8	Resource 9

- Workloads varies across different time windows
- Power consumption is directly correlated with customer workload
- Goal is reducing power consumption by switching off unnecessary data center resources

Green power policies recommendation across various time windows to reduce carbon footprint across different workloads