

FIFTH QUIZ ANSWERS

COSC 6360

December 7, 2018



QUIZ A



First question

- What is the main criterion used by the designers of FAWN to select its microprocessors?



First question

- What is the main criterion used by the designers of FAWN to select its microprocessors?
 - *FAWN selects processors that have the highest instructions per second over power consumption ratio.*



Second question

- What would be the main advantage and the main disadvantage of ***increasing*** the size of the ***in-memory key fragment*** in FAWN?

- Main advantage:**

- Main disadvantage:**



Second question

- What would be the main advantage and the main disadvantage of ***increasing*** the size of the ***in-memory key fragment*** in FAWN?
 - Main advantage: ***Fewer unneeded accesses to the secondary store.***
 - Main disadvantage: ***A bigger RAM footprint.***



Third question

- Which steps does FAWN take to *invalidate* a table entry?



Third question

- Which steps does FAWN take to *invalidate* a table entry?
 - *It marks hash table entry invalid and adds a delete entry to the log (for durability)*



Fourth question

- What is the ***main drawback*** of the dynamic binary translation approach to VMMs used by VMWare?



Fourth question

- What is the ***main drawback*** of the dynamic binary translation approach to VMMs used by VMWare?
 - ***It is slower than the paravirtualization approach taken by Xen.***



Fifth question

- According to the authors of Xen, what is the main limitation of *non-tagged TLBs*?
- How does Xen handle that issue?



Fifth question

- According to the authors of Xen, what is the main limitation of ***non-tagged TLBs***?
 - ***They require flushing the TLB at each context switch.***
- How does Xen handle that issue?
 - ***The top 64MB region of each address space is reserved to Xen***
 - ***Can execute Xen code without changing the page map and flushing the TLB***



Sixth question

- What does H-Store do to speed up access to its stored data?



Sixth question

- What does H-Store do to speed up access to its stored data?
 - *It stores them in main memory*
 - *No disk accesses, no flash memory accesses*



Seventh question

- According to the authors of H-Store, what would be the ***k-safety*** of a database whose data are replicated on three sites?

□ Answer: _____



Seventh question

- According to the authors of H-Store, what would be the ***k-safety*** of a database whose data are replicated on three sites?


□ Answer: ***k = 2***

- ***Because it can tolerate two site failures***



Eighth question

- According to the authors of H-Store, what characterizes ***one-shot transactions***?



Eighth question

- According to the authors of H-Store, what characterizes ***one-shot transactions***?
 - ***Each of its individual queries executes on a single site***
 - ***Output of these queries is not reused as inputs for other queries***
 - ***Easy to execute in parallel***



QUIZ B



First question

- Which tables are replicated by H-Store on all sites?



First question

- Which tables are replicated by H-Store on all sites?
 - *All read-only tables*



Second question

- According to the authors of H-Store, what would be the ***k-safety*** of a database whose data are replicated on two sites?

□ Answer: _____



Second question

- According to the authors of H-Store, what would be the ***k-safety*** of a database whose data are replicated on two sites?

□ Answer: $k = 1$

- ***Because it can tolerate a single site failure***



Third question

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Fifth question

- What is the *main advantage* of the dynamic binary translation approach to VMMs used by VMWare?



Fifth question

- What is the ***main drawback*** of the dynamic binary translation approach to VMMs used by VMWare?
 - ***It does not require any changes to the guest operating system***

This makes VMWare a better choice if your guest OS is a proprietary OS



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Seventh question

- Why the authors of FAWN did not select a ***very low-power CPU*** for their system?



Seventh question

- Why the authors of FAWN did not select a **very low-power CPU** for their system?
 - *Because medium-powered CPUs tend to be more power efficient*
 - *Higher instructions per second over power consumption ratios.*
 - *More cycles per Joule*




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