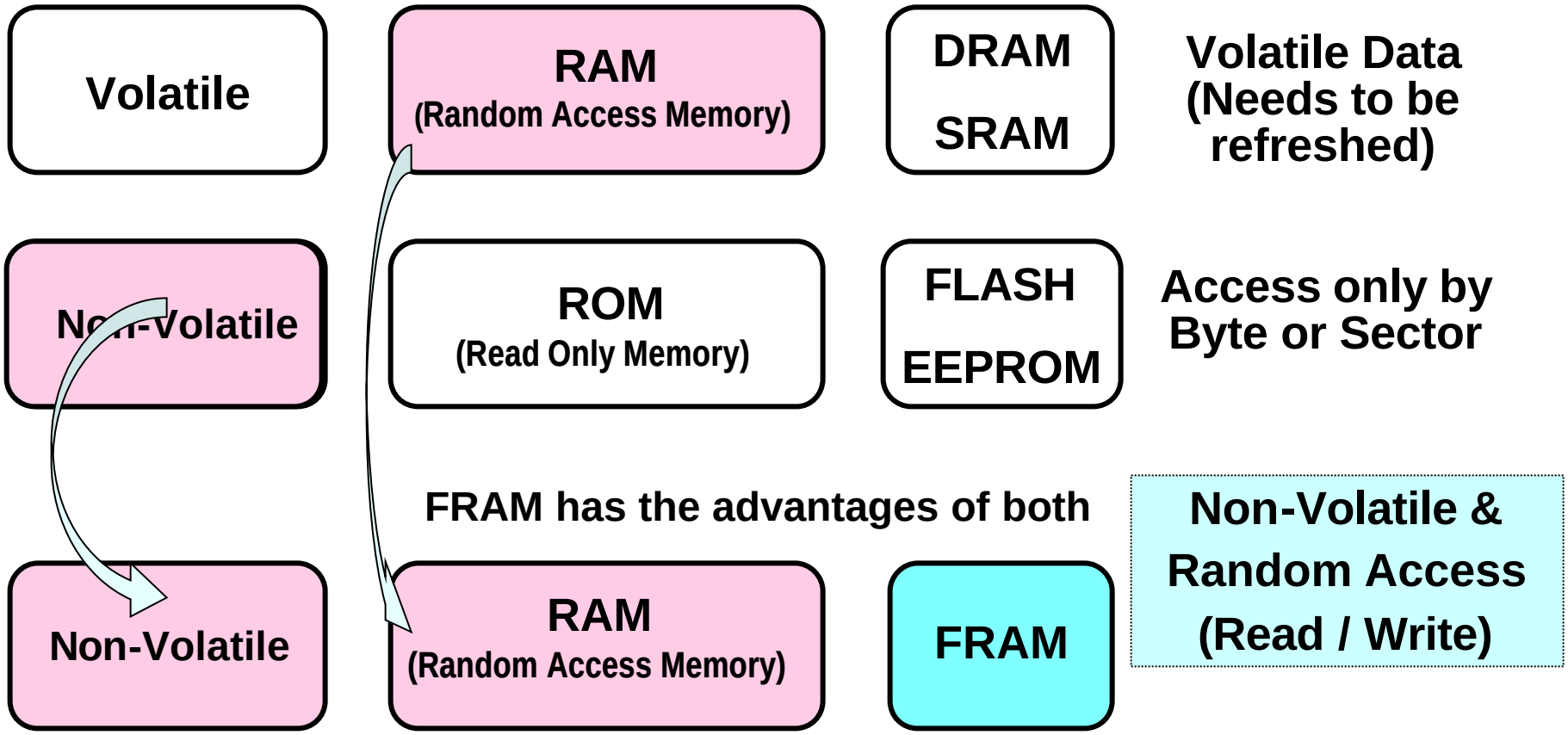
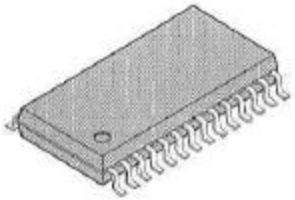
Fujitsu Standalone FRAM

FRAM Positioning

FRAM is a new memory that behaves like a RAM and retains data like a ROM when power supply is removed



FRAM Target Market



FRAM (Non volatile + Random Access Memory)

- High-speed access
- High endurance
- Low power consumption

- No need for backup battery
- Non-volatile
- 10 years data retention


Home Appliances


Cellular Phones


PDAs


Printers

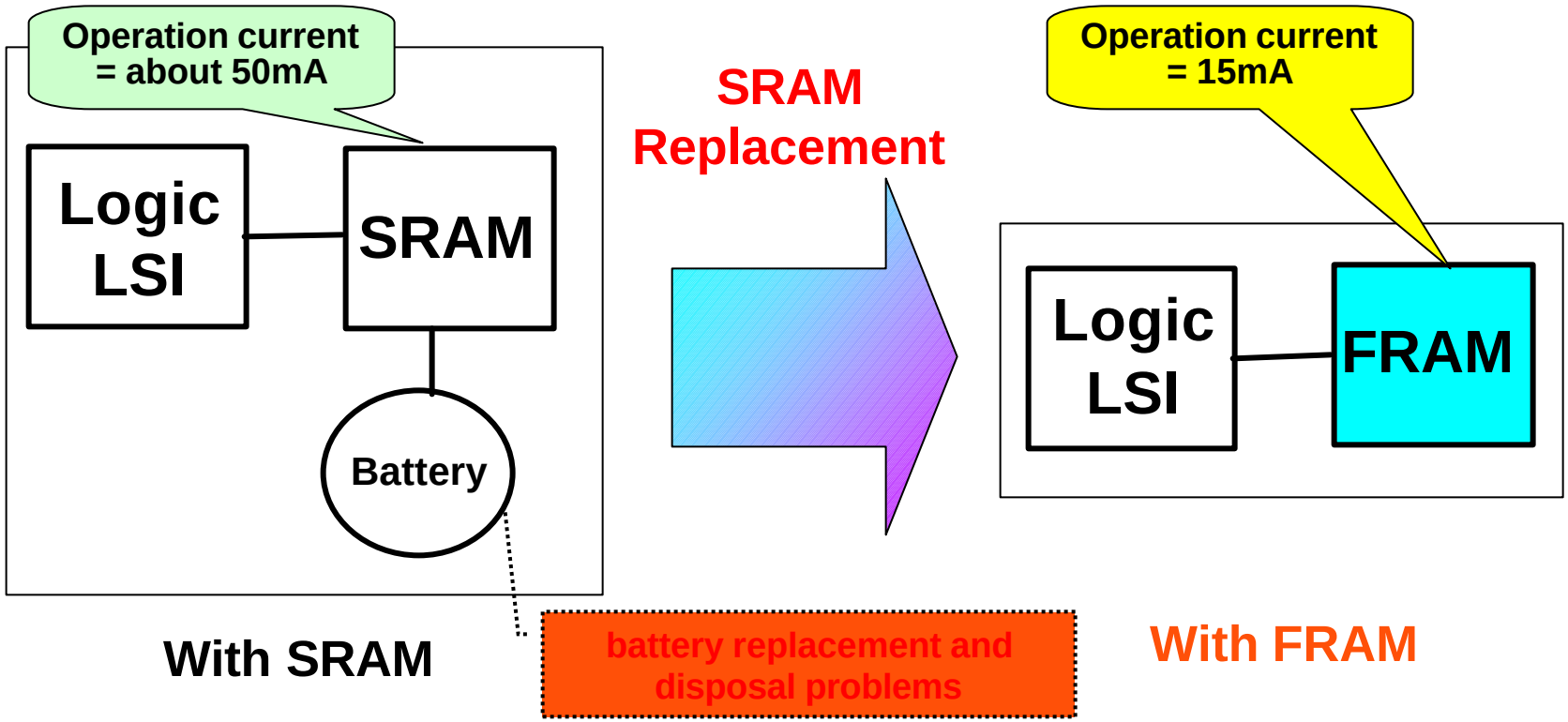

On-board Products


Electronic Toys


Measuring Instruments

Big advantage for battery-driven or portable applications

Example of Standalone FRAM Usage (1)

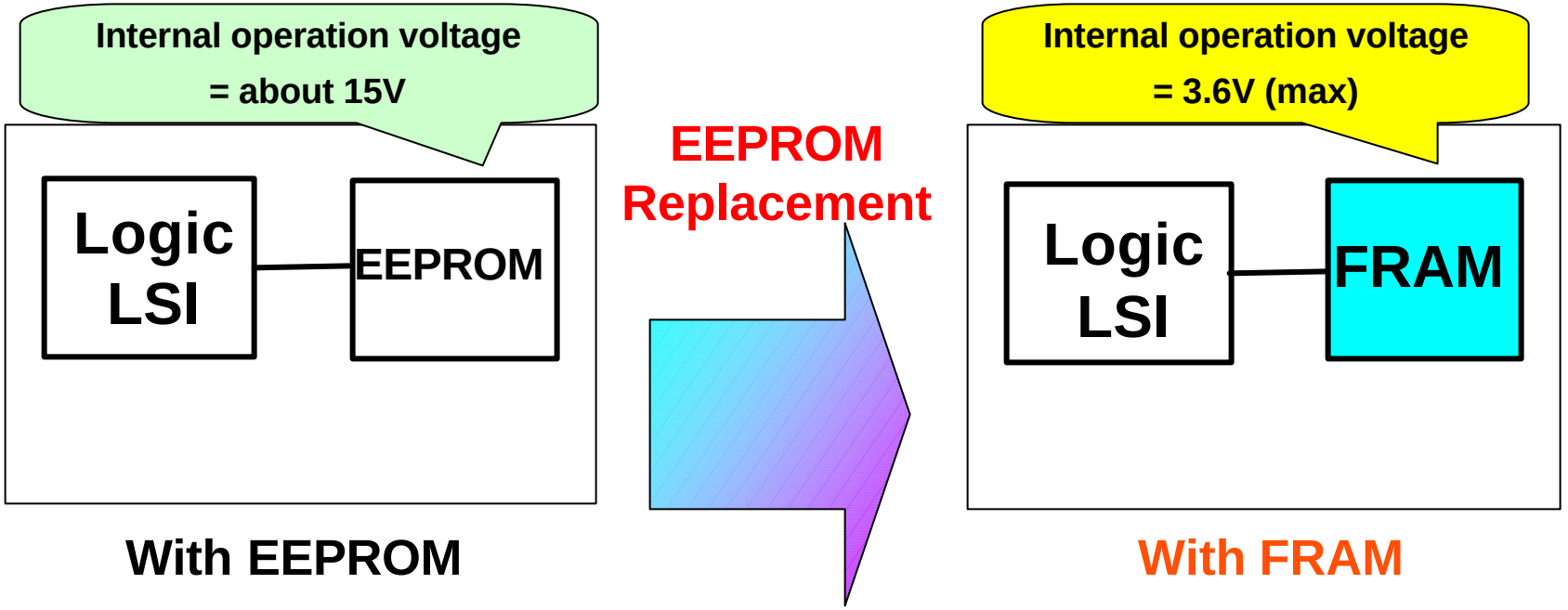


Eliminate battery

Lower overall cost

Eco-friendly & maintenance free

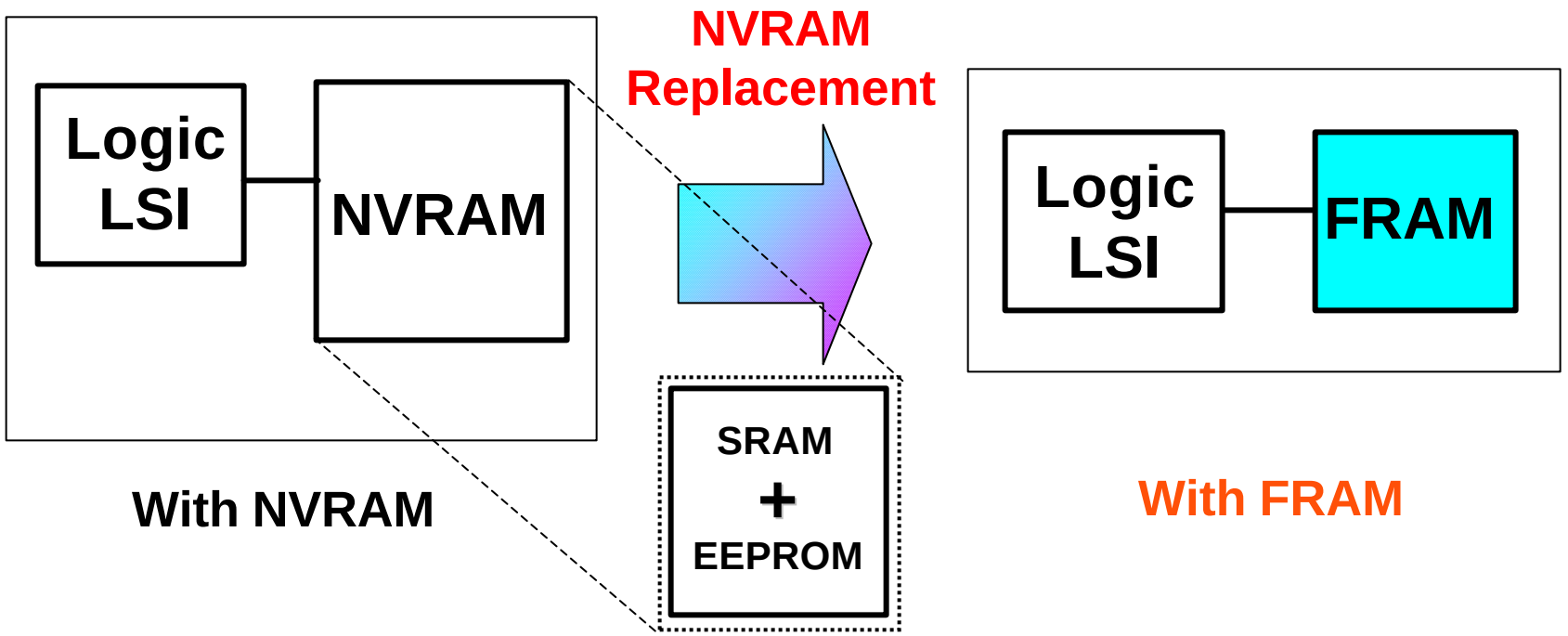
Example of Standalone FRAM Usage (2)



Frequency of memory access is no longer critical

Chip endurance becomes higher

Example of Standalone FRAM Usage (3)



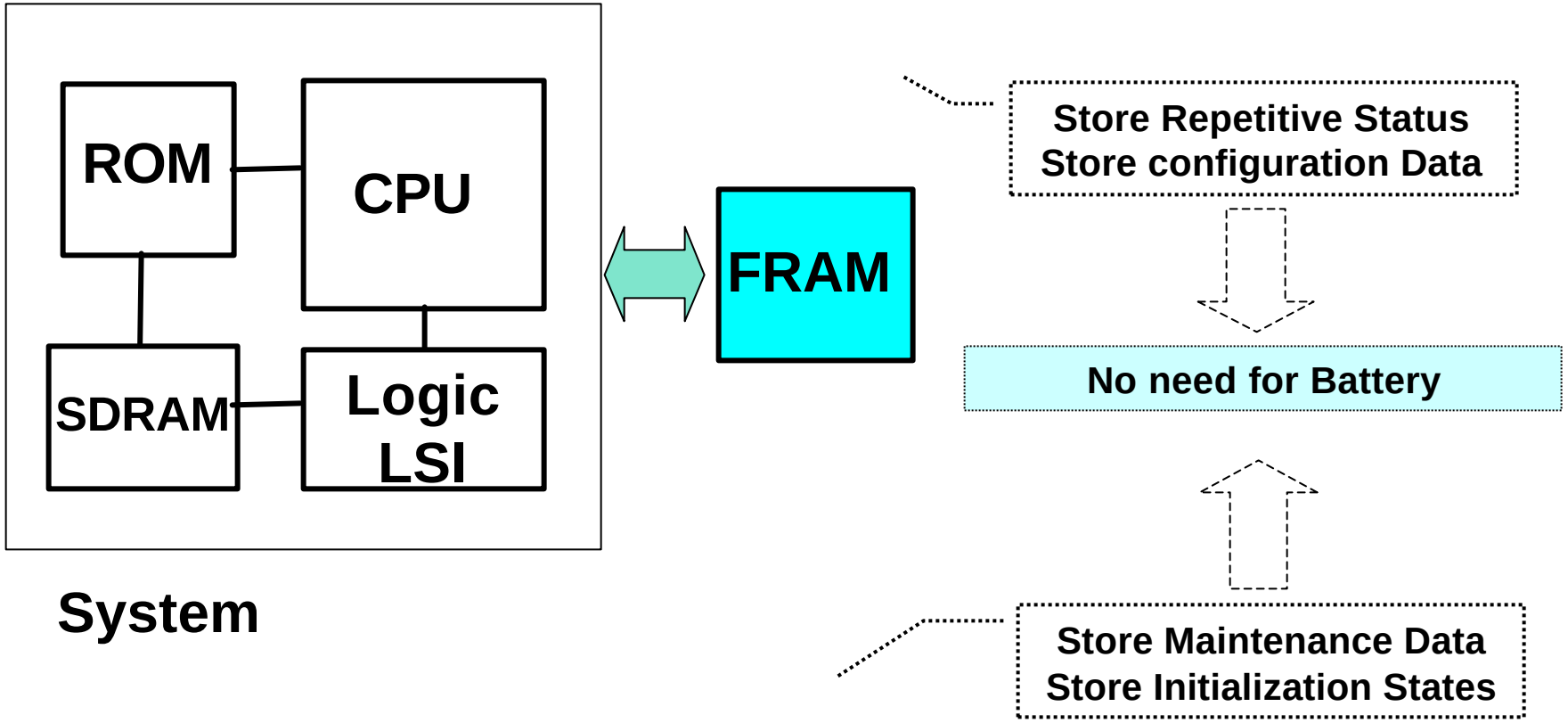
NVRAM stands for "Non-Volatile RAM"

It is a combination of two elements either with 2 chips or multi-chip package - volatile SRAM + non-volatile EEPROM

Therefore it has high costs and a large package size

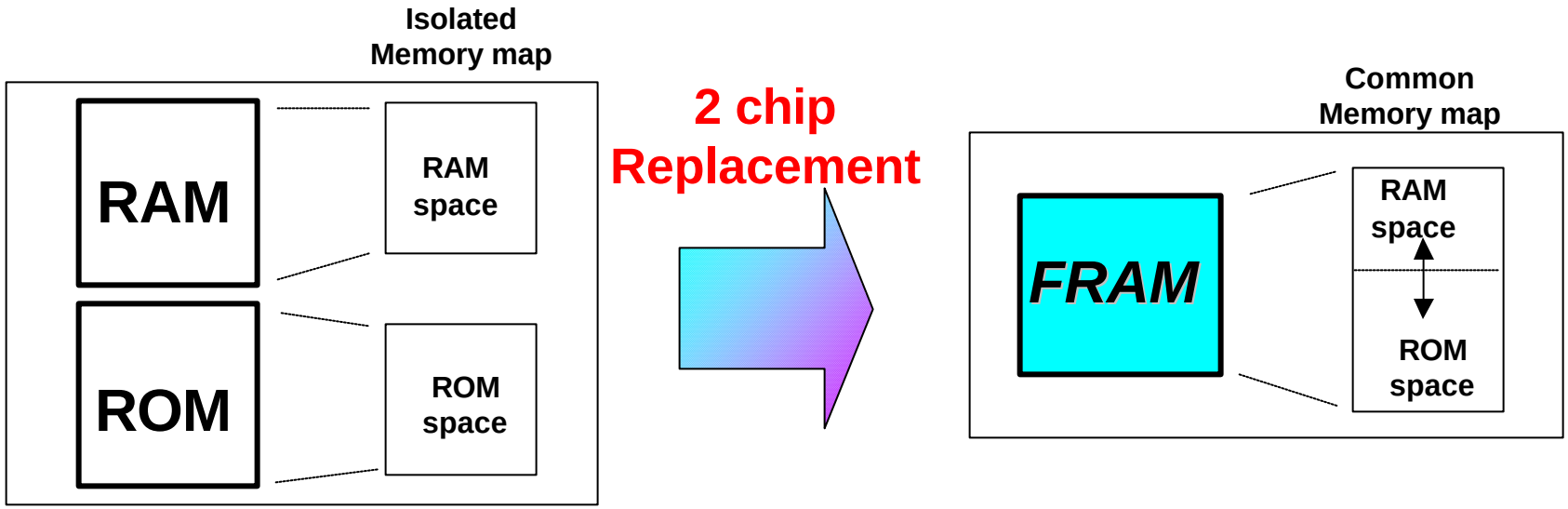
Lower cost, smaller PCB size

Example of Standalone FRAM Usage (4)



Variable memory size with external FRAM

Example of Standalone FRAM Usage (5)



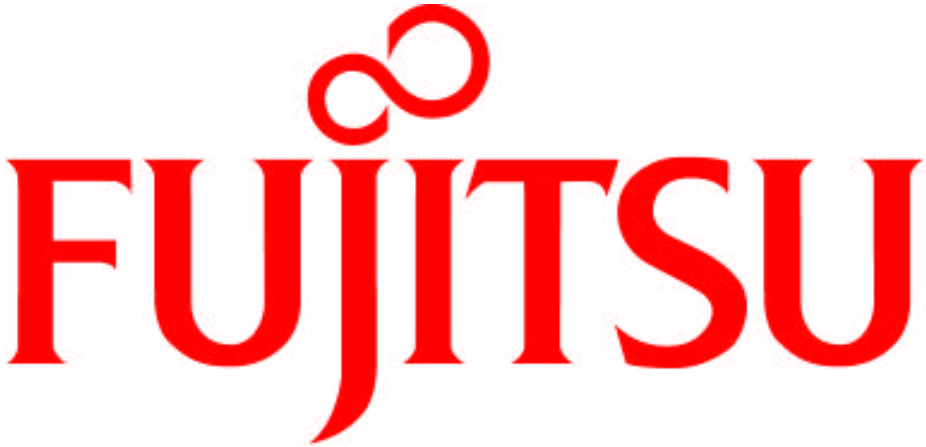
With RAM & ROM

With FRAM

RAM and ROM memory mapping are pre-determined by physical chips

Demerit are limited programming flexibility

Flexible Programming Space



THE POSSIBILITIES ARE INFINITE