

**GoAhead® SAFFire™ availability and management middleware**

For designers and developers of carrier-grade and mission critical systems who care about continuous service, open standards and innovation



open  
**PROVEN**  
service availability



**GOAHEAD™**

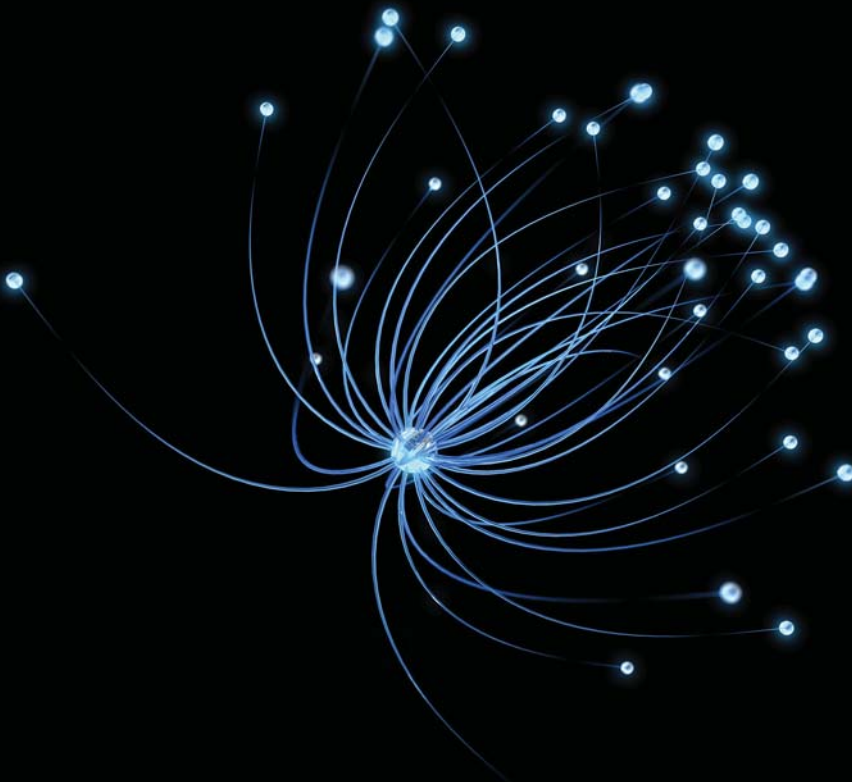
# GoAhead® SAFFire™ Availability and Management Middleware

## The Only Comprehensive Service Availability Forum Implementation

If you are responsible for bringing a carrier-grade or mission-critical system to market, you are most likely juggling challenging requirements—bringing new services to market quicker and with fewer resources, all while ensuring uninterrupted service. Innovators like you are increasingly leveraging standards-based components to speed development cycles, reduce costs, lower project risk and focus on differentiation.

GoAhead SAFFire is the only comprehensive implementation of the Service Availability Forum (SA Forum) Application Interface Specification (AIS). This product includes the sophisticated high availability (HA) and management capabilities proven on tens of thousands of deployments worldwide. In addition to support of AIS and HPI, SAFFire is also platform-independent. This combination equips you with the flexibility to port applications across platforms and make system changes without compromising previous investments. SAFFire was created by a team that has been dedicated – for more than a decade – to successfully designing, developing and deploying highly available systems, enabling you to reduce project risk.

Find out why telecom, aerospace and defense leaders, and others are already leveraging SAFFire to ensure standards-compliance, speed time to market and focus on innovation.





## GoAhead SAFFire

### FEATURES AND BENEFITS

End-to-end high availability and systems management

***Helps you ensure system uptime and uninterrupted service***

Tried and tested code base, proven on tens of thousands of deployments worldwide

***Lowers risk for your project***

Only comprehensive, application-ready implementation of Service Availability Forum standards

***Ensures flexibility, choice and application portability***

Platform and operating system independence

***Enables you to react quickly to technology changes and avoid vendor lock-in***

Pre-integration with leading hardware and software vendors

***Equips you with an application ready platform that lets you focus on application development and meet project deadlines***



## The Leading SA Forum Solution

### Comprehensive AIS and HPI

SAFFire includes a unique combination that no other HA middleware vendor on the market can offer – sophisticated availability and management capabilities combined with comprehensive support of AIS and HPI. This means that you can reduce project risk, by leveraging the stability of a product that has been extensively field tested and successfully deployed on tens of thousands of units worldwide, while at the same

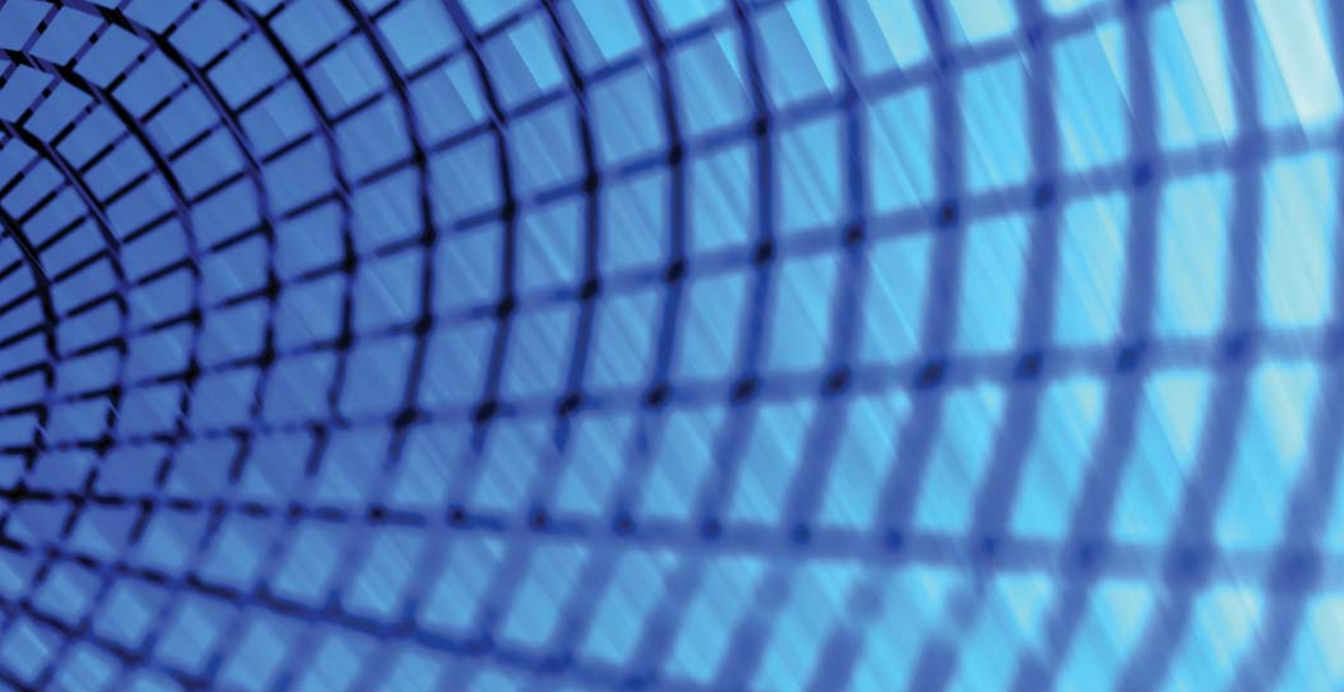
time taking advantage of the most comprehensive and only customer-verified AIS implementation on the market.

GoAhead SAFFire is distinguished by the completeness of its implementation of the most recent AIS specifications, including the following:

AIS SERVICES SUPPORTED	SPECIFICATION
Availability Management Framework (AMF)	<b>B.03</b>
Information Model Management (IMM)	<b>A.03</b>
Cluster Membership Service (CLM)	<b>B.03</b>
Checkpoint Service (CKPT)	<b>B.02</b>
Event Service (EVT)	<b>B.03</b>
Message Service (MSG)	<b>B.03</b>
Notification Service (NTF)	<b>A.02</b>
Log Service (LOG)	<b>A.02</b>
Timer Service (TMR)	<b>A.01</b>
Platform Management Service (PLM)	<b>A.01</b>

No other AIS implementation is as complete, full-featured, or up to date on the SA Forum specifications.





## Tried and Tested

### Standards support with the lowest risk

Telecom, defense and aerospace leaders are already leveraging GoAhead SAffire to ensure standards-compliance, speed time to market and focus on differentiation. Several customers began building real-world applications with the product before it was generally available. These customers provided GoAhead with invaluable feedback and testing to ensure that SAffire meets the high standards for stability, functionality and performance that GoAhead customers have come to expect over a decade of outstanding service.

While SAffire is GoAhead's newest product line, it is built using a proven code base successfully tried and tested on tens of thousands of deployments worldwide.

## Application Ready

### Pre-Integration accelerates innovation

While open standards certainly do offer equipment manufacturers increased flexibility and cost savings, there is still significant effort required to integrate and validate standards-based components to build a true application ready platform. GoAhead SAffire comes pre-integrated with leading hardware and software solutions (RadiSys Promentum ATCA, IBM BladeCenter family and Continuous Computing FlexTCA System, for example). This means that the burden of integration and testing has already been taken care of, and you can focus resources on deploying new, revenue-generating applications on schedule.



## Platform Independent Choice and flexibility

GoAhead SAffire is based on open-standards and platform independence, enabling equipment manufacturers, network equipment providers and ISVs choice, flexibility and the ability to quickly adapt to technology changes.

Early on, GoAhead designed a small, reliable, cross-platform code base that is the foundation for all GoAhead products. This code base, the Kernel, provides both a run-time environment and a portability layer so the same code base runs across all supported platforms, giving you true platform-independence. Our products support multiple leading platform architectures (ATCA, cPCI, blade servers, MicroTCA, etc.), operating systems (Linux, VxWorks, Solaris, and Windows), and CPU architectures (x86, x86-64, MIPS, PowerPC, and SPARC), and can be easily conditioned to handle other combinations.

# SAFFire Services Overview

## End-to-End Availability and Management

GoAhead SAFFire™ includes the most comprehensive set of availability and management services – both those defined by **SA Forum specifications** and **those defined by GoAhead\***.

**Systems Management Services** – Systems management building blocks enable the creation of both external and internal management functionality. External management includes configuration management, performance and operations, administration, maintenance, and provisioning management (OAM&P). Internal management includes a system configuration repository that can be used by SAFFire services as well as your applications, X.73x style notification generation and reception, and system level logging.

- Information Model Management (IMM)
- Notification Service (NTF)
- Log Service (LOG)
- Alarm Management Service (ALMS)
- SNMP Agents and MIBs

**Availability Management Services** – The centerpiece of any HA middleware is its availability management services. SAFFire's availability management services monitor system health, ensure rapid and stateful failover, manage planned and unplanned outages and support for 2N, N+M, N-way and no redundancy models.

- Availability Management Framework (AMF)

**Application Services** – These services are targeted primarily towards application developers to simplify the development of applications for highly available systems. Services provided include communication services for high-speed intra- and inter-node communication between applications, cluster node membership notifications, and checkpoint services that



facilitate state synchronization between active and standby application instances distributed across a system.

- Cluster Membership Service (CLM)
- Checkpoint Service (CKPT)
- Event Service (EVT)
- Message Service (MSG)
- Timer Service (TMR)
- Management Database Service (MDS)
- Resource Virtual IP (RVIP)

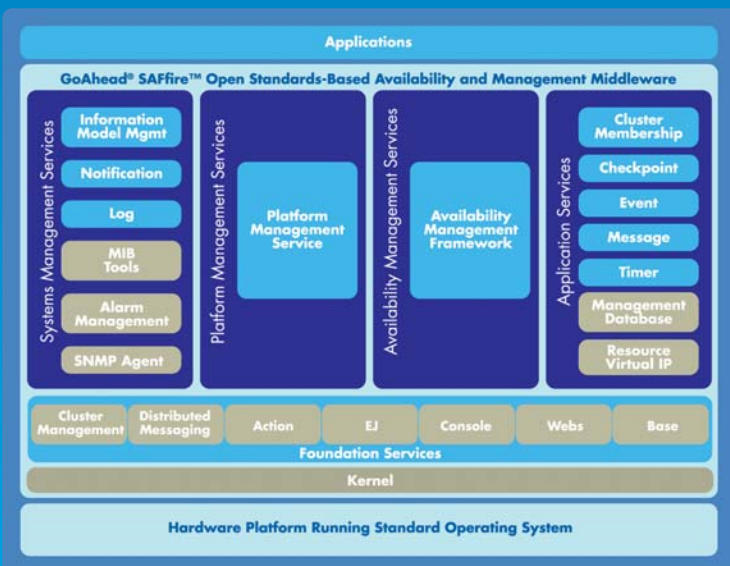
**Foundational Services** – SAFFire also provides a variety of services that system developers can utilize to build highly available systems, including virtual IP management services. Other features include a registrar, which is a mechanism for determining the status of a service, an embedded scripting feature, a WebServer, a data service that provides runtime information about fundamental operating system parameters, and a service that provides functions which allow you to start and run programs using operating system-agnostic API functions.

- Cluster Management Service (CMS)
- Distributed Messaging Service (DMS)
- Other Foundational Services

**Platform Management Services** – For hardware platforms that support the HPI, SAFFire includes platform management services that are pre-integrated with the platform's HPI service to provide automatic hardware resource discovery and display; propagation of HPI events; access to HPI sensors and controls; management of hot swap sequences for field replaceable units.

- Platform Management Service (PLM)

**SAFFire Kernel** – The small, reliable, cross-platform foundation for all SAFFire services, the SAFFire Kernel abstracts platform-specific capabilities into generic platform-independent capabilities and easy SAFFire porting.



GoAhead SAFFire Services

\* All services covered by the SA Forum specifications are color-coded blue, and all services not covered by the specifications, but provided by GoAhead are color-coded in khaki.

## System Requirements

### Measured on Red Hat Linux x86

#### System Requirements

- 5MB system memory
- 12MB disk space (200 MB during development)

#### Languages supported

- C and C++

#### Platforms supported

- Linux 2.6 (Intel x86, x86-64, MIPS, and Motorola PowerPC)

## CONTACT US:

### Learn More About SAffire

#### Contact us for a technical overview or product evaluation!

We would like to meet with you to understand more about your project requirements. Our technical team can provide you with a detailed technical overview of SAffire and explore whether it may be a fit for you. If you are interested in either this or evaluating SAffire, please contact us by calling 425.453.1900 or visiting [www.GoAhead.com](http://www.GoAhead.com).

continuous availability



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