

## UPDATING THE ENTERPRISE ARCHITECTURE PLANNING MODEL

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### ABSTRACT

*The Enterprise Architecture Planning (EAP™) methodology and model are a seminal part of the common body of EA knowledge that remain relevant in their own right and which have influenced a number of other current frameworks, methodologies, and best practices in the public and private sector. However foundational, the EAP™ approach has become, according to some EA practitioners, somewhat dated in its content, presentation, technological examples utilized, and in its relationship to some aspects of how EA is being practiced today. The intent of this article is to refresh one part of the EAP approach, the famous EAP model (also known as the Wedding Cake™) and to provide explanations of each part of the updated model.*

### KEYWORDS

enterprise architecture, planning, wedding cake, methodology, EAP

### INTRODUCTION

The Enterprise Architecture Planning (EAP) methodology, based on its 1992 publication date and widespread adoption, could be argued to be one of the foundational works in the common body of knowledge of the practice of Enterprise Architecture (EA). This being said, the EAP methodology and supporting model have become somewhat dated and require refreshment to capture key aspects of current EA practices and to ensure that EAP remains a viable approach for EA implementation. For example, many current practitioners agree that EA is a continuing program, not an all-or-nothing short-term project, and the updated EAP model emphasizes this point. The purpose of models are to help people visualize otherwise abstract concepts and relationships, and hopefully the updated

EAP model accomplishes this to an even greater degree by virtue of these revisions.

Models are essential to EA, and just as the famous Dutch artist M.C. Escher found ways to draw images that provided new and sometimes provocative views of otherwise ordinary worlds and the objects in them. To do this, Enterprise Architects must be able to:

- See the big-picture (forest) from the pixels (trees)
- Notice patterns and trends where things are going
- Detect the inconsistencies and consistencies
- View multiple perspectives of the whole and its pieces
- Separate the idiosyncrasies from the synchronies

- Distinguish what from how, who, when, where and why
- Articulate the blueprints so that others not only see and understand them, but embrace them as well

## THE NEED TO UPDATE EAP

Let me (Tiemann) tell a short story that captures the essential reasons for updating EAP. Several years ago the authors were speaking with a colleague, William "Bill" Rummer about the need to update EAP, and he said "It's a beautiful little process that is well organized and simple to understand. Do you really think it needs to be changed?" I replied emphatically, "Yes and here's why... we have learned much about how and why EA works or doesn't work since EAP was first published, and the fact is that things are changing so fast and so many specialties have grown up in and around the practice and profession of EA that to not change EAP would undermine the continued viability of the approach." As things got going, Steve contributed his own changes.

What happened next was a series of follow-on discussions and work sessions between the authors that resulted in a number of subtle but important changes to the EAP approach and supporting **general model** (sometimes called the **"Wedding Cake" EA model**). The simplicity of the approach was preserved in recognition that EAP uniquely enables Enterprise Architects to implement an EA program and **jump-start it by capturing the primitive artifact information that is required to quickly and effectively populate the top two rows of the Zachman EA Framework** (Zachman, 1992).

A review of a number of EA projects that had used the EAP methodology revealed that another implementation phase was needed, where solutions and systems components are detailed, planned, designed, and implemented. This phase involves considerably more than a transition plan, rather it is a programmatic institutionalization of EA and a directed development process that continuously uses and relies on the EA for direction and correctness.

This is a good point in the article to mention that one of the reasons we changed the EAP Wedding Cake model was to insure that as a part of the institutionalization of the EA program that governance is effectively established. We recognize that without it, the migration or transition plans created are just un-validated projects. Only through effective governance do they become a real portfolio of approved transition plan projects. This aspect is perhaps the most important of all of the reasons for changing the EAP Wedding Cake model and its descriptions.

The remainder of this article focuses on changes to the EAP Wedding Cake model, in that this is perhaps the most well known and recognizable element of the overall EAP methodology... a methodology that is comprehensive in its ability to support the establishment, implementation, and ongoing maintenance of an EA program in the public or private sector.

## CHANGES TO THE EAP MODEL

For those who are familiar with the original EAP Wedding Cake model, you should be able to easily spot the changes. For those to whom the model is new, the changes are in the **"Business Knowledge," "Repository Management," and "Program Transition and Follow-on Design"** areas, each of which replace a previous model part.

In the original EAP method, each area in the model corresponds to a set of well-defined steps in a very organized and ordered EA process, as is shown in Figure 1 on the next page. Updates to the EAP model are shown in Figures 2 and 3, also on the next page.

Generally speaking, the model works such that the process flows from top to bottom and from left to right. Planning initiation (shown at the top) is preparation for the architecture process and not actually part of the EAP implementation steps. EA planning should be viewed as a project activity, usually estimated to take from six to eight months and that usually results in a final go or no-go presentation to a decision-maker who would support the EA's implementation.

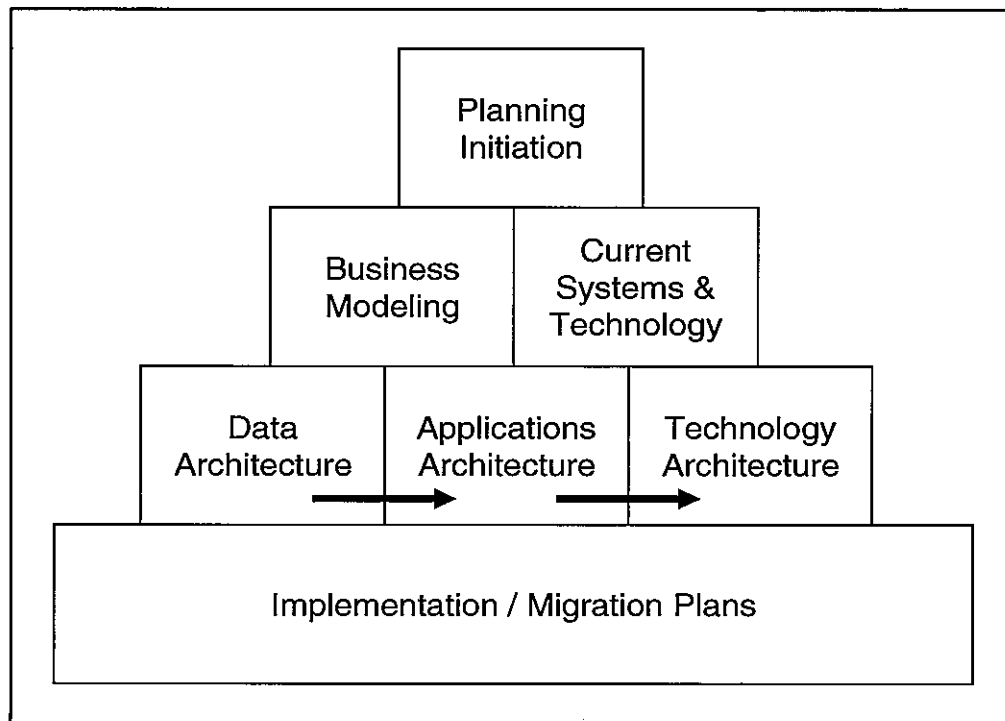


Figure 1. The Original EAP "Wedding Cake" Model – Circa 1992

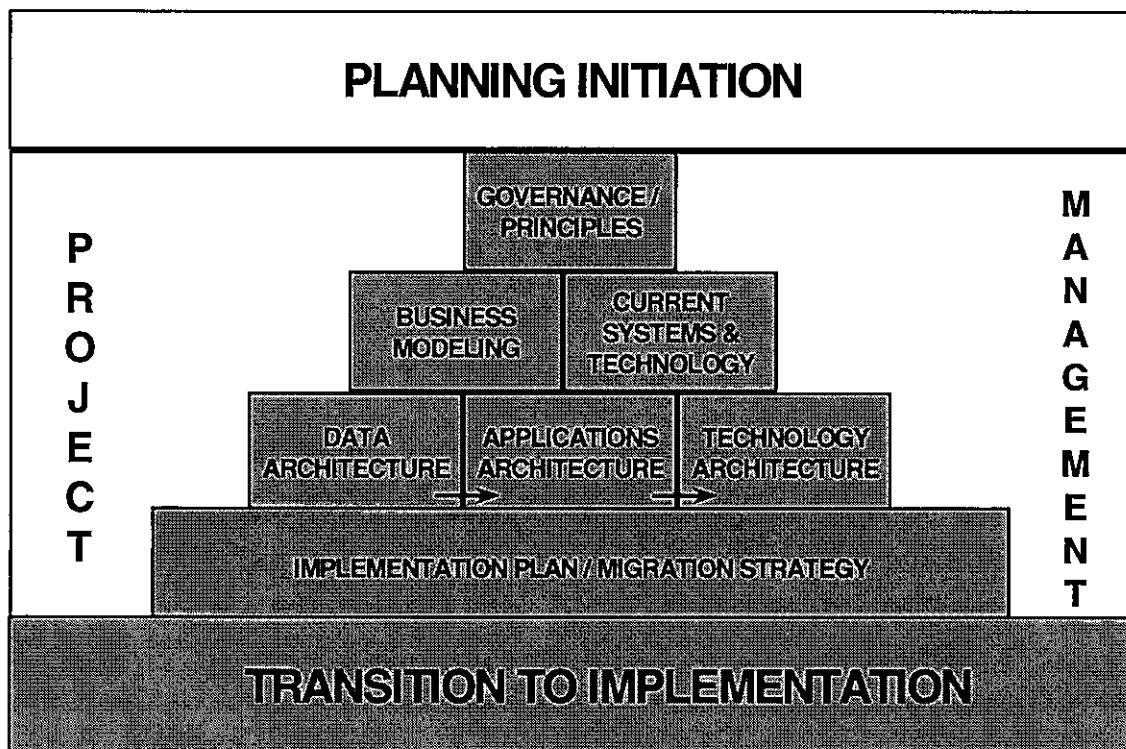


Figure 2. Intermediate Version of the EAP "Wedding Cake" Model – Circa 2000

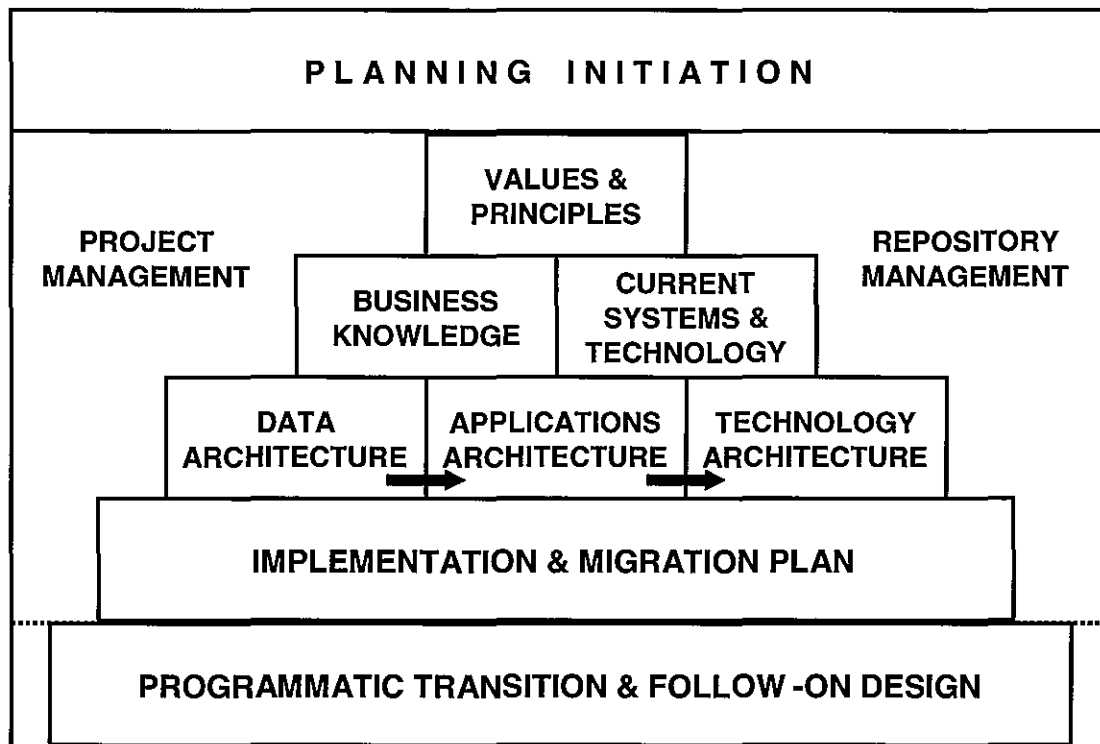


Figure 3. The Updated EAP Model – Circa 2006

It is our observation from many prior EAP-based architecture projects, that rarely did senior executives not approve the transition plans. This is because the team doing the EAP implementation usually did its homework, ensured executive level involvement, and presented an EA plan that was well documented and aligned to the business. Executive management had worked alongside the EA team for the duration of the process, and indeed was presented with options making many decisions over the course of the project. Therefore, it would be unlikely for them to reject a recommendation to transition to a future architecture they had helped to define and document. Lessons learned from many EAP projects supports early definition of the success criteria that would ensure, if met, the plan would be approved and the EA succeed. This criterion is usually established in the Planning Initiation step.

However, treating EAP in a project-centric approach could cause the EA process to be viewed as a one-time event, instead an ongoing program that is an important part of how an enterprise develops, manages, and changes its business and technology

operating environment. Other concerns included the lack of coverage for the knowledgebase or repository management for EA information. This is an important topic that is stressed in EAP courses, but was not very evident in the original model or EAP book. This is a major change in how EA is done and increasingly sophisticated tools and repositories are helping Enterprise Architects manage and get value from EA programs.

As we learned more about the business area of the EAP model, we know now that the business information defined within the EA needs to be more than just a simplified description of the higher order functions. What is required today is a full set of business artifacts, describing the business knowledge base that integrates the strategic initiatives and vision, through the principles and business rules, right down into the processes, tasks and activities. In fact, with Service Oriented Architectures, these tasks and activities must also be translated into patterns and ultimately become business services. So the term “business model” is too limiting.

When I wanted to call this part of the model the Business Architecture, Steve felt the term "architecture" was still too static and limiting in the aforementioned context and part of the EAP process, so he said "lets just call it Business Knowledge." I thought about it and decided that it made sense given all of the various facets that make up the Business Knowledge base. I saw that "architecture" could be misconstrued only as a limited set of high level functional definitions leaving out the critical details like, business rules and explicitly defined and documented processes, tasks and activities. As EA progresses and evolves, tying into other popular EA approaches (e.g., Service Oriented Architecture, Model Driven Architecture) the need for robustness in Business Knowledge will grow.

As a result of our redefining several of the elements of the EAP Wedding Cake model, we decided that it was important to get these changes out to the EA practitioners, and consequently we began writing a pamphlet entitled "Using Enterprise Architecture Planning in Government" (AT&T/PIEAI, 2004). The pamphlet described the revisions to the Wedding Cake model in the context of how EAP could be applied in the government, with special emphasis on how it related to and supported the Federal Enterprise Architecture Reference Models, which is currently used in EA programs in the federal government. The following discussion is an overview of the information on EAP updates that was presented in the pamphlet.

## THE NEW EAP MODEL

*Planning Initiation* - This is the preplanning phase that is critical to setting all of the things in place to be able to use an EAP approach to creating an EA. The main outcomes from the following activities are a detailed project work plan and commitment of resources:

- Define the "enterprise" and ultimately the scope of the EAP (and the EA)
- Establish an EA future vision
- Install and customize (as needed) a basic toolset. This used to mean very basic tools

As EA has evolved and the process has become more stringent in requirements for details, it has increasingly become necessary to decide on a tool that has more functional capabilities to capture details and to graphically represent them in a myriad of articulated views:

- Identify, select, and obtain approval of time requirements for team members' participation. Team members refer to the representatives from the business units (or staff from the program areas) that will be on the EAP team
- Identify success factors, obstacles, acceptance criteria, and use these to conduct an assessment to determine organizational readiness to do the EAP

Each of these steps can be further broken into sub-steps, and there are, of course, a defined set of artifacts, documents, or deliverables that are created.

*Values & Principles* - These stated "Values and Principles" are basis for starting an EA. They create the basis for all future decisions involving the EA and what's defined within it. Ratified, well-formed principles shape the foundation for architectural decisions. The acceptance of those decisions and continuing the on-going management of the implementation plan, as well as, the institutionalization of the EA program are in a major way resultant from completing this step.

- Define supporting values on which to base the effective governance of information and technology that determine proper actions and decisions
- Define and approve EA Principles

*Business Knowledge* - This is often referred to as a business model and sometimes as the business architecture. Completing this step provides the core that inter-relates business strategies to the current and future information technology (IT) architectures and implementation plans:

- Identify and relate all strategic goals (Business and IT) to the EA

- Compile a knowledge base about enterprise functions, sub-functions, processes, activities (and sometimes tasks), the information used, the performance measures and metrics, business rules and opportunities for process improvement

*Current Systems & Technology* - The outcome of this step is an inventory of application systems, components and services, data schemas, interfaces and technology platforms that provide a baseline for transition, modernization and or migration plans and for utilization in operational IT management:

- Define and document current (as-is) applications systems (components and services) and supporting technology platforms to the level of detail required and defined in the Planning Initiation step
- Use the baseline to establish EA metrics in terms of an ultimate return on investment, based on cost savings and avoidance from economies and elimination of unnecessary redundancy and duplication and other similar results

*Data Architecture* - The outcome of this step is a common business language that enables improved and consistent communication across the enterprise:

- Define major kinds of data to form basic vocabulary for business language
- Assign critical attributes

*Applications Architecture* - As a result of this step, identifying the systems required to support the business, the team will be equipped to address operational capabilities and characteristics in applications and components (and services) that are required to manage and utilize data and information:

- Define sets of capabilities to manage data
- Develop the (create, read, update, or delete-CRUD) relationship to the data

- Facilitate identifying opportunities for business improvement, strategic goals, and current system issues

*Technology Architecture* - This phase is fitting sometimes hundreds of potential and current technologies (components) to enable different capabilities that the enterprise will require, to implement the architecture:

- Identify and categorize the capabilities that are required
- Establish a standards profile and a technical reference model
- Select various technologies and/or technology strategies to implement
- Validate the sufficiency of selected technologies

*Implementation & Migration Plan* (also called a Transition Plan) - This plan is resultant from the analysis of the gap between the baseline and target architectures. As an outcome of this step, the organization will be ready to begin transition to the future (to-be) architecture through an organized and prioritized plan:

- Make judgments about including or excluding current systems
- Determine sequence for implementing applications, components and services
- Schedule resources and times for implementing projects
- Analyze net cost-benefit and ROI to feed business cases
- Develop master project plan for a program transition period after EAP

*Programmatic Transition & Follow-on Design* - After completing the EAP, management receives final reports, deliverables, electronic databases, files and presentation of results, but then, needs to begin the transition into an EA Program. The EA Program is a continuing function or set of activities that not only ensures the updating and upkeep of the EA and the transition plan, but also integrates with the governance and budget decision processes. Ultimately, it also integrates the IT operations and the systems, services and

components design, development and implementation steps as well. Additional activities that could fall within this phase are:

- Institutionalize use of architectures and procedures to keep architectures current
- Oversee required EA reporting and funding mechanisms
- Ensure that IT designs, upgrades, and implementations are continuously synchronized with architectures
- Update EA policies, standards, guidance, and procedures
- Recommend acquisition of new technologies.
- Establish positions and training programs for new skill sets to support EA work and governance
- Prepare for implementing architectural blueprints establishing linkage to System Development Life Cycle (SDLC) or other implementation approaches and or strategies, including the Model Driven Architecture and/or Service Oriented Architecture

Additionally, in the new model there are now two areas "outside" of the model's components that are key to the implementation of EA. These are the "Project Management" and "Repository Management" elements. These elements of the model are shown on either side, because they tend to be important aspects of the overall processes of defining and doing of the EA, throughout. When I suggested to Steve that we should use the second area to emphasize the repository management function, which just like Project Management, was also required and important throughout the process, he thought it was a great idea. It emphasized, he said, as he taught in his EAP classes, that the building of the EA knowledgebase (managed in the form of a repository) is important. The key facets of each of these aspects of the process, as we revised them, are Project Management and Repository Management.

*Project Management* - Any activity of any scope these days in the enterprise will be managed as a project that has a schedule, a

work breakdown structure (WBS), specific deliverables and in some cases a performance metric approach like Earned Value Management or at least completion criterion. The specific things covered are:

- Develop a detailed project management plan (that will eventually morph into a continuing annualized EA Program Management Plan)
- Develop a Work Breakdown Structure that identifies specific deliverables aligned to specific completion objectives
- Provide periodic reports or briefings on status and completion of the EA

*Repository Management* - As EA methods and programs have evolved, it is becoming increasingly important that the correct modeling tools and a very efficient repository, both with appropriate configuration management and appropriate security administration are in place to support the EA and its various uses. This has become a niche area within EA that is both specialized in some ways (working and used EA Modeling Tools) and common to other systems and supporting knowledge management capabilities for projects and programs (operating and managing a portal or repository system). Some of the specific areas of requirement are:

- The identification of a tool and or repository to support the EA
- The acquisition of the toolset and /or repository and its implementation with configuration management and proper security and systems operations management
- The training of the EA team and others to access and use the tools and the repository
- The continuous updating (and versioning) of the EA artifacts and documentation into the repository

## CONCLUSION

The revised EAP Wedding Cake model is an important part of the refreshment of the EAP approach. This refreshment helps to

strengthen and reconnect EAP to the continually evolving stream of EA methodologies that are in use globally. In the Foreword to the original 1992 EAP book, John Zachman stated that his EA Framework identifies what to define, but the EAP process was the first published and practical approach to tackling how to develop and document this information in Zachman's top two rows. In our update to the EAP model, we have presented several significant changes that reflect updates in how and when to do EA that we felt were needed to advance and refresh the originally defined process. This will help make EAP more current and hopefully still very useful in understanding how to do EA in the public and private sectors.

#### **AUTHOR MIKE TIEMANN'S NOTE**

While this article was drafted by me, the material was created collaboratively with Steve Spewak before his death in 2004. Therefore, it seemed fitting that we both be listed as co-authors, especially since EAP is his very original and unique creation. Steve was a really smart guy who was as talented as he was witty and fun. He used to come over to my house and I would have to pry him loose from the baby grand piano to go to work, like our discussions that lead to this article. He could play the rock opera "Tommy" by heart.

The characteristics of an enterprise architect listed at the beginning of this article are from an inscription he wrote in an M.C. Escher collection book, which he gave me as a present when I came to work with him at AT&T Global Services in the 2002-2004 timeframe. We both liked Escher and appreciated the analogies to our work.

All of us who call ourselves Enterprise Architects are indebted to Steve and his thought leadership in creating and teaching EAP to so many people over the years. EAP influenced a number of other EA approaches including the Federal EA Framework (Federal CIO Council, 1999) and the EA<sup>3</sup> Cube Framework (Bernard, 2005). It is my hope that this article not only shows how Steve was thinking about updates to EAP, but also refreshes his legacy and

helps our community of enterprise architects to continue to use and benefit from the EAP methodology that helped set much of the initial common body of knowledge for EA process in place. Lastly, I have been in touch with Stefan DeVocht and Gary Matyas, both of whom were good friends and business partners of Steve. They reviewed this article and support its publication. It is my hope that at some point in the future that we (Stefan, Gary and I) can provide a follow-on article that revises the entire detailed set of EAP processes and materials, so that this approach remains relevant in all aspects.

It should also be noted that "Enterprise Architecture Planning" (EAP) and the "Wedding Cake" are registered trademarks of the Enterprise Architecture Institute, now doing business as Partners in Enterprise Architecture Institute (PIEAI), and are used with permission.

#### **AUTHOR BIOGRAPHIES**

Dr. Steven Spewak continues to be recognized internationally as one of the principal founders of the discipline of Enterprise Architecture, who developed a number of practices that are common to many EA approaches, including the first methodology, multi-dimensional model, and the concept of principals that EA implementation should be based on. Dr. Spewak's seminal book "EA Planning: A Blueprint for Data, Applications, and Technology" (1992) not only popularized the term 'Enterprise Architecture,' but also presented the myriad of concepts and practices in an easy to understand manner that helped many architects implement EA programs in the public and private sector. Dr. Spewak passed away in March 2004.

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a distinguished career in the federal government, including the position of Chief Architect for the Department of Energy. He was DOE's representative to the Federal CIO Council's Architecture and Infrastructure Committee and was the founding Chair of the Federal Architecture Working Group. Mr. Tiemann, who currently chairs the Governance Subcommittee of the Industry Advisory Council's Enterprise Architecture Shared Interest Group, has written and lectured widely on various aspects of EA.

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